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VOL. XIV. NO. 2.

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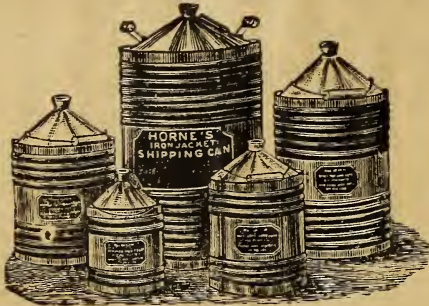
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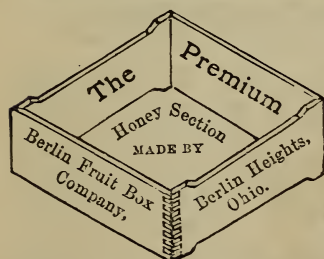
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## MINUTES OF THE DETROIT CONVENTION.

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*Beeswax*, scarcer and higher, 22@25c.

Jan. 7, 1886. **CLEMONS, CLOON & CO.,**  
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R. A. BURNETT,  
Jan. 11, 1886. 161 S. Water St., Chicago, Ill.

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Vol. XIV.

JAN. 15, 1886.

No. 2.

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#### MORE ABOUT THE BEE'S EYES.

A TALK TO THE JUVENILES ON HOW TO COMPREHEND MERE NUMBERS.

**A**S Prof. Cook has opened the way, I now venture forth with a few more notes upon the bee's eye—such facts as I have been enabled to glean from the field of the microscope.

This is not intended to supplement Prof. Cook's able article on the above subject, but is simply the result of independent research. I therefore will take up the eye of a bee, presenting it in a slightly different phase.

Let me see—I was going to write to the little folks, so I am. First, I desire you to read Prof. Cook's article over carefully, for you surely will find it interesting; then if you choose you can see what I have to say.

The compound eyes that Prof. Cook told you about are called "compound" because there are a great number of eyes in one. If I should tell you that in one of these compound eyes there are over 3000 little eyes you would hardly know how many this meant. When I tell you that the sun is over ninety millions of miles away, you could then form but a small idea of its immense distance. Figures have but little meaning to us, unless we can have something for comparison. Astronomers—men who study the stars—have a way of comprehending distances, and I will try to explain it so you can understand it.

You are accustomed to regard this earth as very large. You can travel a whole week over its surface, and then you will have gone over but a small portion of its circumference. Now, did you ever

think that light travels? If you are old enough, and have been at school long enough, you will find that it travels exceedingly fast. Why! it can go around this great earth more than seven times a second; and yet, with this enormous speed, wise men tell us that it takes eight full minutes for the light to travel from the sun to our earth. In other words, it takes eight minutes for the light to travel 90,000,000 of miles—the distance from the sun to us. Now, can you understand what a lot of ciphers mean? If you do not, get your mother to help you. A moment ago I told you that a bee had, in one of his compound eyes, over 3000 simple eyes, or 6000 in both his large eyes. These figures I obtained with the aid of my microscope by counting a certain number, then estimating. By referring to Carpenter—an authority on the microscope—I find that a fly has in two of his compound eyes 4000 simple eyes; the cabbage-butterfly, 17,000; dragon-fly, 24,000.

These numbers are by no means as large as those standing for the distance to the sun; yet three or four thousand, I fancy, will have little meaning to our little folks. Let me see—a very large hall or church will hold perhaps three thousand people. Now, suppose you crowd every one of these people into an area of little over an eighth of an inch square, how small do you suppose each person would become? He would be about the size of one of these simple eyes in the compound eye of a bee.

Little friends, I have given you these comparison in order that you may better understand what mere numbers signify, and also that you may better comprehend how very small are the simple eyes of the bee.

Let us next glance for a moment at the general

appearance of the bee's eye, a cut of which appears below, showing the form of each simple eye, or "ocellus;" their combined surface resembles, somewhat, sealed comb honey (or brood). In the



EYE OF A BEE.

drawing, the simple eyes are exaggerated; for if given in their exact proportion they would be hardly visible. Through the microscope, however, these simple eyes appear like a lot of little beads nicely imbedded over the surface of the large eye, and I do not know of any part of the bee that is more beautiful under the microscope than this.

You notice in the engraving, that part of the eye looks as if the central portion had been torn out. This is to show the shape of each little eye when dissected. You observe that the outer surface of each is hexagonal (having six sides like honey-cells), and tapers down to a point. To this is attached the optic nerve, communicating with the brain. Perhaps you would liken the whole to a sunflower head filled with ripened seed, the whole head answering for the compound eye, and the separate seeds the simple eye.

#### UPPER ABSORBENTS.

##### CAN BEES WINTER IN OPEN-MOUTHED BOTTLES?

**T**HERE is no business or occupation in existence, that I am aware of, in which there are so many prominent, vital questions unsettled, as in bee-keeping. There are numerous points, important to all and doubly so to the beginner, on which we will find leading and successful apiarists holding diametrically opposite views. We see this at every bee-keepers' convention and in nearly every bee-journal we read.

To the experienced bee-keeper this want of unity in thought with the argument which it brings, is not only of no injury, but often of decided benefit, by leading him to question more closely his reasons for his own line of action, and thereby detect any possible flaws therein. To beginners, though, whose ideas are not yet matured by experience, this variety of opinion is, to say the least, somewhat bewildering. Still there is no help for it. By discussion we shall the sooner arrive at truth; and it is but justice to the beginner to present both sides of the question, in order that he may decide for himself on those points where "doctors disagree." Very often what is right for one locality or system of management is all wrong for another, and so both sides may be right, and no doubt frequently are. We are apt to get so deep into our own groove that we do not see our neighbor in *his* groove, although it may run almost alongside of our own, and coming out at just the same place.

I am led to write this by the article which appeared on page 824 of Dec. GLEANINGS. The writer takes alarm at the statement by Mr. Heddon, that he is "becoming of the opinion that our upper

absorbents are usually useless and oftentimes worse," and expects the editor, as a matter of course, to join him in attacking the heresy. I have read Mr. Heddon's reply with interest; but as he is probably busy with his new book and reversible hive, he does not go into the subject with his usual thoroughness.

Several years ago, in giving in GLEANINGS the results of some extensive wintering experiments, I said that, while it seemed to make little difference during the winter whether an enameled cloth or a porous covering were used over the bees, a porous covering was a decided detriment during the spring months. Further experiments since then have convinced me that, if other conditions are observed, there is never any real advantage to be derived from upper absorbents, while with a small swarm or a large hive, or at any time when brood is being raised before warm weather comes, there is a great disadvantage from their use. I find, too, that many of those most successful in wintering have come to the same conclusion. Moreover, I have no doubt that the reason why bees in box hives, without care, often winter better than those that have the advantage of all the modern improvements is that the latter are frequently ventilated to death, while the former are more often allowed to hermetically seal the top of the hive, and absorbents are never thought of.

I consider that the essential points in outdoor wintering are, 1. Plenty of good honey, or its equivalent, with but little pollen; 2. Strong colonies; 3. A contracted hive, a covering impervious to moisture, and a large entrance; 4. A protection from the cold (on top, and, if possible, on all sides) of chaff or other non-conducting material, the thicker the better.

To carry out this system, as soon as spring comes the bees should be crowded on still fewer combs, and the entrance made quite small, until the size of the colony and the heat of the season make enlargement necessary.

##### WHY ABSORBENTS ARE INJURIOUS.

Bees at all times exhale a certain amount of watery vapor. In cold weather this must pass out of the hive, or be condensed on its combs or walls as water or frost. To prevent this condensation many place porous materials inside the hive, which are supposed to keep the hive dry by absorbing the moisture. Very often they do this very well for a time; but if no provision is made for drying them they become damper and damper as the winter continues, until finally they can hold no more moisture. Any thing wet is, under such circumstances, necessarily cold, and this damp cushion often proves a veritable "wet blanket" on the prosperity of the unfortunate colony, extending its malign influence long after cold weather is past, compelling the bees to dry this soaked and often frozen cushion by the heat of their bodies before they can be comfortable.

Instead of absorbents some employ ventilation, carrying the moisture out of the hive along with an upward current of air through the top. There are but few who advocate that this current should be unrestrained, as when an opening in the top of the hive communicates directly with the outer air, because the folly of this course is usually easily seen after a hard winter or with weak colonies. The heat of the colony is carried off so rapidly that either all die during some cold snap, or they

dwindle away by degrees and die in the spring, or come through with but a fraction of a working force.

Others prefer a medium course; viz., upward ventilation through a thick layer of chaff or other porous material. Here the chaff is not really an absorbent, but only serves to restrain the upward current of air. If any moisture is absorbed it is soon dried out by the rising air. This is much better than unrestrained upward ventilation, or absorbents without upward ventilation, but it is also very wasteful of the heat of the colony. Any thing like an upward current is injurious, causing the bees to become uneasy, and consume a greater quantity of food, rendering them more liable to starvation and diarrhoea.

It is scarcely necessary to remind any of the readers of GLEANINGS that warm air is lighter than cold, and therefore has a tendency to rise; that the top of an apartment containing any source of heat is warmer than the bottom, or that, if a hole be made in top of such an apartment, a draft will be created which will lower the temperature of the room by removing the warm air; neither is it necessary to remind you that moist air is heavier than dry air, especially when cool.

In the face of these facts I can hardly see why bee-keepers follow the unscientific and unnatural plan of using absorbents or upward ventilation to remove the moist air which would run out of the hive itself if permitted, carrying very little heat with it. "All-out-of-doors" is the best, cheapest, and most extensive absorbent of moisture we can find. To gain this end, the entrance should be large—I would have it not less than 12×8, the wintering apartment small, so that the bees can warm all parts of it, and its walls protected by some non-conducting material, the thicker the better, in order that they may be kept warm so that moisture will not condense on them. These walls, sides, and top, should be of some material impervious to air or moisture; then the watery vapor generated by the bees, being heavier than the air, will sink to the bottom and flow out at the entrance, while the warm air will remain confined at the top of the hive.

The prime cause of our wintering troubles is cold. Retention of moisture in the hive, or ventilating it out at the top, must lower the average temperature, which is something we should carefully guard against.

8—J. A. GREEN, 85—100.

Dayton, Ill., Jan. 6, 1886.

Friend Green, your reasoning is good, and the most of it I am prepared to follow. But it seems to me you are going a little to the extreme when you recommend a small wintering apartment, impervious to air or moisture. Of course, you recommend that this small apartment should be well protected by some non-conducting material, and that the entrance be large. I agree with the latter, and may be with the whole of it; but to be sure we understand you exactly, suppose you put your bees into a bottle having a large mouth, the bottle to be just the size to contain the colony, and to be protected abundantly by warm packing over all the bottle except the mouth. Would this be just the thing? I am rather inclined to think it would, if the mouth of the bottle were of just the right size; and 12 inches by 8, or an equivalent, would probably be about right

for an average colony. You will see, by looking at the A B C book, that I come pretty near on to your ground, though I confess I should have feared to recommend a glass bottle. I say *glass*, because glass is a better non-conductor of heat than metals, or, I might have said, a water-tight tin box. Now, if your position is the right one (that we can confine every bit of the animal heat, provided we keep the frost entirely away from the impervious covering), I do not know but we are going to make a big step in this matter of wintering. I notice the poultry journals are recommending just this thing exactly. Let the fowls roost in an air-tight apartment, except an opening below, where they hop up on to their roosts. This, of course, is for zero weather.

## VISION IN INSECTS.

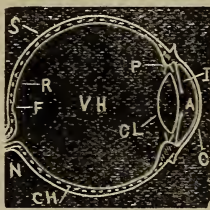
AN INTERESTING TALK ON EYES IN GENERAL.

I SUPPOSE many of the readers of GLEANINGS know that the eye is a very complex organ. The window of the eye—the cornea, marked C in the drawing—is transparent as clearest glass.

This bends the rays of light that pass it, as does water. We all know that this is why the stick in a glass of water appears to bend. The rays of light do bend, and so the stick appears to bend. The aqueous, or watery humor, A, back of the cornea, is simply a filling; it varies the ray of light leaving the cornea, almost none at all. The iris, I, is what gives color to the eye. It is the window-curtain, which the eye dexterously raises or lowers as it wishes more or less light. This is to the eye what the diaphragm is to Ernest's microscope. The reason that the iris is colored is from its containing a coloring material called pigment. The same material in the hair or skin gives color to those parts.

The albino has none of this pigment, so his hair is white, his skin pink as a baby's—the blood-vessels show through—and his eyes are pink for the same reason. The albino can not close the shutters, as his iris is transparent, and so in daylight his vision is dazzled, and, like an owl, he can see better by night than by day.

The pupil is the little black hole in the center of the iris, where all rays of light must enter every eye—except those of the albino. This little port-hole is black, only because it opens into a black chamber. Just back of the pupil and iris is the beautiful crystalline lens, C L. This is a double-convex lens in form, and no crystal is clearer. My students, in their dissections and study of the eye, always exclaim at the marvelous beauty of this crystalline lens. This crystalline lens, like the cornea, bends the rays of light still more, so that all from any point of an object [wherever they may enter the eye come to a focus on the retina, R, the part of the eye that is able to perceive or take note of light and color. This focusing is absolutely necessary to perfect vision. In near-sighted people the rays are bent too much; in old people, too little. The crys-



A SECTION OF A HUMAN EYE.

talline lens bulges more as we look at very near objects, and less as we gaze at things distant, and so we are able to see distinctly in every case. In "cataract" this crystalline lens becomes opaque, and the person, of course, is blind in that eye. The operation for cataract consists in the removal of the crystalline lens, which is often done in case of cataract in both eyes. Isn't it marvelous that a surgeon can cut right into the eyes, take out a part, and thus restore vision?

Back of the crystalline lens is the jelly-like, perfectly transparent vitreous humor, V H. This seems to be a sort of packing to fill up the space between the crystalline lens and retina. Of course, it must be transparent, else how could the light pass to the retina? The retina, R, is the expansion, away back in the eye, of the optic nerve. This retina is the tell-tale. It reports to the brain all the beauty of form and coloration in the outside world. What a terrible blank in the life, when no such reports are made! The retina is very complex, and I will not describe it.

Just outside, or back of the retina, is the black choroid coat, the dotted line marked C H. This is black because of pigment, and it also contains the blood-vessels that nourish the eye. To see well, the eye must be a black chamber, and so this choroid coat is black; the same is true of the microscope and the photographer's camera. Indeed, every perfect optical instrument has a black lining.

Now, all insects—and so our bees—have eyes of similar structure to our own. The bees have two large compound eyes—one on each side of the head, and three simple eyes. The compound eyes consist of many simple eyes close together. Sometimes each compound eye is made up of thousands of simple eyes. Each one of these simple eyes has a cornea, humors, crystalline lens, and retina, from which a nerve runs to the brain.

We detect form in objects, it is supposed, because we have two eyes, and see a little more to one side of an object with one eye, and to the other side with the other eye. Müller held that bees and all insects could, in the same way, detect form as well as motion and color. His was termed the mosaic theory of vision. Exner opposed this view, and held that insects could not perceive form. Plateau, of Belgium, has just reported to the Belgium Academy many experiments, and concludes with Exner that bees can not detect form. He also says that the simple eyes are imperfect, or rudimentary eyes. That, as he says, bees have no better eyes than flies, is certainly a reasonable conclusion.

Now, what do our bee-keepers say to this theory, that bees can not detect form? Are we not certain that a slanting board, or a slight change in position of the hive, is at once detected? I believe facts, as gained in that large laboratory, the apiary, are often stronger than facts gleaned in a much smaller way by the scientist in his laboratory.

Again, theory would assert quite as readily that the compound eyes could, from their peculiar structure, detect form as quickly as motion. True, motion is ever throwing the image in different simple eyes; but varying form would also affect different simple eyes, and why might not different eyes, as well as a varying position in two eyes, detect form? That the single simple eyes are imperfect, is, I think, true. Often they are so covered with hairs as to make them useless; and the very fact that in many insects they have been snatched away entirely,

suggests that they are useless in all. If any reader wishes to study an eye, let him procure a head at a slaughter-house, freeze the eye after it is carefully cut out, then it can be dissected and examined in all its parts.

A. J. Cook.

Agricultural College, Mich.

Thanks for the very able manner in which you have treated this subject. I am sure our little friends will find great pleasure in reading from your pen. It was my intention to give the children a little talk on the eye, but I felt myself not "big enough" for the task. I had thought of writing you for what information I lacked, but I see, by a kind of special providence you have anticipated my questions. In another column, since you have opened the way, will be found a few more notes on this subject.

How I should enjoy being one of your students in this special kind of work! It was my hope, after finishing my classical education, to take a special course under you; but fate, if that be the term, has denied me that privilege.

ERNEST.

## HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

MONEY FOR THE POOR MAN; THE GREAT ACME PENETRATIVE.

UNDER the above title, or something like it, you will notice, in many of the papers, a picture of a stump on fire, with an advertisement of a chemical that will be sent for a dollar, sufficient to burn any stump, green or dry, and the dollar's worth will burn up root and branch, 12 large stumps or 18 medium-sized ones. The advertisement says the compound contains no saltpeter. We sent our dollar and obtained a pinkish-colored compound that *does* contain saltpeter. A circular came along with it, headed, "Money for the Poor Man." On the last page of said circular are quite a number of testimonials from farmers, relative to the wonderful results obtained by the use of this Acme penetrative. Every one of these testimonials, however, is destitute of address and date. The advertisement comes from F. E. Fross & Co., New Carlisle, Ohio. In writing to the above firm in reference to sending out such testimonials they make no reply. The paper wrapped around the Acme penetrative was part of an advertising circular of a firm in New Carlisle who formerly dealt in bee-supplies. The *Ohio Farmer* contains a caution to farmers about a new kind of seed wheat, also coming from this Fross & Co., with the name spelled a little differently. The *Rural New-Yorker* also has a caution in regard to swindles about a chemical for burning out stumps. The whole matter seems to be in some way mixed up with the names of those who formerly advertised bee-supplies from New Carlisle, therefore our bee-friends will probably get an abundance of circulars from this

place. If there are some honest men doing business in seed wheat or bee-supplies at New Carlisle, we would caution them about letting their name be mixed up, or their circulars, with F. E. Fross & Co. If they want a hearing, we shall be glad to give it.

I should have said in the outset, that the directions for using this Acme penetrative tell us we must wait two months and a half after putting it in the stump, before the stump is ready to burn; so you see they have two months and a half to run their advertisement before any one can gainsay their claims.

### HEDDON'S NEW BOOK, "SUCCESS IN BEE CULTURE."

ALSO SOMETHING ABOUT HEDDON'S NEW HIVE.

THE book in question is paper bound, 128 pages. It is profusely illustrated, but we are sorry to note that a good many of the new illustrations are not engraved as they should be; in fact, the book explains that the engraver did not do his duty. Friend Heddon has evidently had experience in trying to make engravers picture things as they are, instead of some heedless plan of their own. It is an excellent plan to have the engraver make a drawing first on the block, and don't let him engrave it until the drawing is as you want it. The book contains many terse and valuable thoughts, characteristic of friend Heddon's vigorous brain. And now, however much we may find in the book to criticise, it is well worth half a dollar. The food for thought that it gives to every bee-keeper, young and old, it seems to me, is well worth the cost of the book. I think, however, it should be read in connection with other works on bee culture, as so many things are passed over in a brief way, from necessity, on account of the size of the volume. The principal feature of the book is, to me, Heddon's new hive. The hive we talked so much about a year ago is described in the book; but the new one is to throw the old plan entirely aside. The principal feature of the new hive is in making the brood-apartment in two stories. Each story contains frames only  $5\frac{3}{4}$  inches in depth. These frames are closed-end frames. On account of their shallowness this will probably be no great obstacle in the way of manipulation, and friend Heddon claims that almost all necessary operations can be performed without removing these shallow frames at all. To facilitate this, the top and bottom bars are made only 13-16 inch wide—a little narrower than  $\frac{1}{2}$ , you will notice. Years ago I thought of making a hive without frames, somewhat on this principle, having the combs shallow, and pretty widely spaced with narrow top and bottom bars. My plan then was that we could reach down between these narrow top and bottom bars, widely spaced, so as to cut out queen-cells, or see brood, even to a depth of two or three inches; turn the hive over, and a depth of two or three inches on the other side would put all the combs under our control or under our eye—at least without taking the combs out. Two of these

shallow brood-nests give a capacity of an ordinary lower story. The sections are put in shallow wide frames. It is a little amusing to see friend Heddon go back and declare in favor of wide frames, and *separators* also, after the way he has denounced both for a year or two back. If I were he, I would be a little mild in denouncing any thing, especially if I expected to change my plans within a year or less. It is true, however, that a very progressive mind must change in opinion as it explores new and different fields. The wide frames, with separators to hold the sections, are exactly the same as the case for three section boxes, which has been for so many years illustrated in our price list, only it is made to hold four sections instead of three. Both the brood-frames and wide frames are closed-end, and rest on a strip of tin at the bottom of the hive or case. Like Quinby's closed-end frames they have no projecting arms, but are alike either side up. This makes the frames reversible, and the hive is also reversible. Of course, you can not get the frames out of any hive or section unless it is a certain side up. The ends of these closed-end frames come close against the ends of the hive, for the frames themselves, outside dimensions, are only 1-16 inch less than the inside of the hive.

A good many things may be accomplished by dividing a hive horizontally into two sets of shallow frames. It occurred to me at once that this shallow hive would be a splendid thing for shipping bees, especially so since friend H. makes the whole thing solid, and fixed by a wooden thumbscrew to put through the hive at the proper place to screw up the frames tight, the screw striking the middle of the end-bars of the frames. In this shape it is reversible at pleasure. The bottom-board is cleated around its outside edges so as to give the necessary bee-space when the first story is placed on the bottom-board. Friend Heddon enumerates a great many advantages to be secured by this shallow frame. I believe he has not mentioned, however, what seems to me to be a great and serious disadvantage. It is this: He is dividing the brood in every comb right through the center, or heart of it, and interposing two sticks and the  $\frac{3}{8}$ -inch air-space. It is true, the queen may be made to do very fair work in a comb only five inches deep; but from the way in which queens seem to prefer to lay their eggs in a circle, say from six to eight inches in diameter, I can not think you can get this circle down to less than five inches without loss. It is true, she may make the circle embrace the combs in the upper story as well as the combs in the lower story; but then we have this division above spoken of in the heart of the brood-nest.

Friend H. has a patent on the hive. Of course, he has a perfect right to have a patent on it if he thinks it is the better way; but in view of the fact that so many of the features of his new hive have been in common use, if I were in his place I think I would not have had a patent on it. I hope he will excuse me for venturing to give my advice when it has not been asked. We have

discussed patents so much already, I do not believe it will be worth while to go all over it again; but that these shallow frames will answer tolerably well, has been proven repeatedly. T. F. Bingham has used for years a hive with frames only six inches in depth, and Heddon's are only a little shallower, as you will see. R. Wilkin, when he used to live in, Ohio, also used a shallow-depth frame; but after a great many years of experiment with them he abandoned them. The closed-end feature is not new; the idea of putting screws through the side of the hive to tighten up the frames together is not a patentable idea. The whole arrangement, however, is sufficiently different from any thing heretofore in use, and friend H. is, without question, entitled to a valid patent, if he thinks it best to have one.

We should like to know how many seasons he has tested this, if more than one. I should like to give illustrations of the whole hive; but I confess I should want some better engravings than are found in the book. If friend H. will send me a hive just right I will have some good engravings of it made, at my own expense. We can mail the book on receipt of price, 50 cents.

### DISASTROUS WINTERING.

HOW THE BROKEN RANKS WERE RECRUITED.

**I**N 1884, white clover yielded bountifully in this vicinity. I began the season with 74 colonies, which I increased by natural swarming to 102, besides receiving a nice harvest of light honey.

There was no fall honey. In the fall I removed sixteen miles to a new home. I found it quite a task to remove my bees. I took charge of their removal myself, and did it as carefully as I could; still, I lost one colony by the combs melting down.

At my new home I arranged my hives south of the house. They were arranged in six rows, facing south. The hives were painted, and looked nicely, standing on the green grass beneath the trees. I remember looking at them from the window, and thinking of them as an army placed there to defend my home from want.

As the fall flowers yielded no honey my hives grew light in stores, and less populous. I fed, doubled up, and cared for them until they were reduced to 33, and at that time I was compelled to leave home for a time. When winter set in my wife hired two men who carried the bees into the cellar. On March 26 I carried them out and placed them on their stands. I found many dead, and none seemed more than half alive. That evening I looked out again at my army, but its ranks were fearfully broken. The spring in this region was cold and backward; and although I fed, nursed, and tended, they dwindled, were robbed, and swarmed out, until my army was reduced to 17 colonies. Of these, 5 might be termed fair; the other 12 were little more than nuclei. When I looked out at those 17 colonies, all that remained of my army, I exclaimed, "How are the mighty fallen!"

To relate this tale of disaster would do no good unless the supposed causes were pointed out. I believe that, on account of the scarcity of fall honey, there was but little brood raised in the fall, and therefore winter found my colonies weak in bees,

and those few mostly old bees, destined by the law of their nature to die before spring.

Last winter is destined to be remembered on account of its intense and long-continued cold. As I was in a new home the cellar deceived me, not being so frost-proof as it appeared. As my hives were not populous, it was impossible for the small cluster to keep up the heat necessary to a healthy condition in that cold cellar. Then to crown the disaster, after they were placed upon their summer stands I think the weather was unfavorable for them as it could well be, and the result was spring dwindling.

From the reasons I have mentioned, the spring of 1885 yielded me a bountiful harvest of empty hives and combs. After duly considering the condition of affairs, I went out among the farmers to buy bees, and succeeded in picking up 38 colonies in box hives, at an average cost of \$3.87 per colony, and therefore began the season with 55 colonies. By what is termed the Heddon method I transferred those I purchased to my own combs and hives. The past summer was not counted a honey year in this vicinity, yet I increased to 75 good colonies, and received enough honey to pay for the colonies purchased. Fearing a repetition of the experience of last spring I prepared my cellar with care, banking up the house, and closing up every crevice with lime mortar. I also placed a stove in it, so that, if the thermometer should fall too low, a fire could be started. Up to the present time my bees seem to be wintering nicely.

W. D. RALSTON.

Hopkinton, Iowa, Dec. 31, 1885.

### REPORTS ENCOURAGING.

158 LBS. PER COLONY SECURED BY THE DIRECTIONS GIVEN IN A B C.

**I**HAVE no bees now, but shall open up an apiary in the spring, for it is the best paying business that I ever worked at. I am told that bees did not do well here this season. I did some transferring for two parties, and they seemed to have done well enough. The great trouble is, the bees don't get the attention they should. The first four years after I read your A B C I made 158½ lbs. of salable honey per colony, per annum; the highest yield, 300 lbs. per colony, two years ago.

East Newbern, Ill., Nov. 8, 1885. R. S. GIBERSON.

But, friend G., you don't tell how many colonies you had. If only three or four, the report would not be nearly as large as if you made forty or fifty quite that amount.

\$72.00 RECEIVED, AND NO OUTLAY.

I must send in our report, even if it is poorer than ever. We started last spring with 26 poor weak colonies (as we lost more than half of our bees last winter and spring), and increased to 55; went into winter quarters with 54 nice rich colonies. We did not get much honey this year, as the bees did not make any honey from the first of July to September. Then there was a couple of weeks that there was quite a flow of honey, and they filled up their hives, and made a very little surplus. We sold about 470 lbs. of honey; came to \$72.00. Not a very big paying summer's work; but one thing is in our favor, we were at no expense.

LOUISA C. KENNEDY,

Farmingdale, Ill., Dec. 29, 1885.

# PROF. COOK ON THE PRESENT ASPECT OF TEMPERANCE.

ALSO SOME VERY KIND WORDS IN REGARD TO GLEANINGS.

**D**EAR FRIEND ROOT:—You already know that I have always approved your course in making GLEANINGS the medium of other thought and suggestion than that which belonged solely to the bee-keeping industry. I think you have done no little good, perhaps as much in helping people to happier and better lives, as in advancing bee-keeping. The firm hold and warm place which GLEANINGS has in the hearts of its patrons is proof enough that I am right. The people recognize the great truth, that we do not live by bread alone. In your calling the attention of so many to the words, life, and teachings of Him in whom was no guile, and who "spake as never man spake;" who gave to the world such inspiring words as, "Let him that is without sin cast the first stone," and, "Father, forgive them, they know not what they do," you have builded, though perhaps not better than you knew, but so well that the structure reaches to hearts all over the land, and bears hope, cheer, and encouragement. Then, again, your good wholesome words on the tobacco habit! Who can tell how many men are cleaner for your timely exhortations? I have sometimes wondered, if Shakespeare had lived in our day, when tobacco drags its horrid presence into so many homes, if he would have said: "What a piece of work is man! so noble in reason, . . . in action so like an angel! the beauty of the world!" for when we think of it, what more irrational than that men should form and continue a habit that renders them filthy and disagreeable to associates; robs—yes, worse than robs the pockets, often injures, and even destroys health, and, worst of all, blunts those finer feelings of courtesy and good taste which it behooves us all so studiously to cultivate? I am glad, dear brother, that you have fired such telling shot into the ranks of the army of tobacco-slaves. It must have pleased you to see how very few at Detroit used tobacco; and those who did, so far as I saw, were those whose locks tell that they are beyond the years when advice finds ear, or good counsel takes root.

But there is another habit whose wrongs, whose evil tendencies, whose blasting work of sin and ruin, so pales the tobacco habit that you and I, and every patriot, not to say Christian, feels that to stay its ghastly tread would be the glory of the age. Slavery blasted the hopes and lives of only a portion of one race; intemperance reaches its horrid, blasting hand into the homes of all races, and is cursing homes in every land. So great an evil can not long go unchecked. If, as I believe, the John Baptist in this glorious liberation is to be education, then GLEANINGS, and every voice and press in the country should make bold strokes toward this desired enlightenment.

Prohibition has always had my sympathy, and I would gladly give it my heartiest support; but it seems not to touch the key to the problem, and is more helpful as an index to improved sentiment, I fear, than as an active means in destroying the evil, which all good men would see banished from the world. It seems to me that at present, prohibition is not practicable. So many of our best temperance workers have no confidence in it, and so give

it no aid, that our ranks in that line are fatally weakened. Again, prohibition does not prohibit where prohibition is most desired. True, if it work only a partial stay of the curse, it is good; but if it holds back some stronger force that would wield a far mightier power, then surely its presence as a law or a scheme to be urged, is unwise, and impolitic.

We all know that prohibition, in places where there is not a moral force to sustain it, is inoperative; and the fact that it fails where most needed is made a strong argument against it. Again, while many of us shrink from licensing any evil, least of all so terrible an evil, yet if a license will stop in any degree the sale and use of this demon alcohol in places where prohibition is impotent to do good, then surely on that axiomatic authority, of two evils choose the least, we should favor license under a heavy fee. Now, why would not a law like that already adopted in some of the States suit all, do most good, and get the support of all temperance people? That is a license with a heavy fee, in conjunction with local option in every town and village or city where it can be carried? That gives us prohibition where it can do any good, and does not remove license where only license can be effective. It seems to me this is where we can all unite, and is worthy our best consideration. Why not all of us urge it, and work the people up to its adoption. GLEANINGS can do much in this line. I do not see how this plan can fail of general support, and I am glad to urge it in season and out of season.

A. J. COOK.

Agricultural College, Mich.

Friend Cook, I am glad to know that you are deeply anxious in regard to this matter that lies so heavily on the hearts of our best people; and the greatest cause for anxiety now seems to me is, that people's convictions differ so much on what is best to be done. Many of our best Christians are positive that a certain course is exactly the course, and that no other can be right, while I find those who seem to be equally honest and earnest feel just as strongly that it is *not* the best way nor the right way. Many of the readers of GLEANINGS will feel hurt, no doubt, at some things in your kind article above (please turn to Our Homes for July 15th. 1883), while many others will rejoice to know that you have decided just as they have decided. Now, even if we can not think alike, let us try to have charity and kind feeling toward each other; and let us always be open to conviction. At one time during our civil war, when General Grant was pushing ahead, even though disaster and loss of life resulted, as it seemed, continually, many of our best and wisest people thought he ought to be stopped; and even his friends began to tremble for the consequences. Who was right and who was wrong? began to be the terrible question to meet. Who shall dare to take such awful responsibilities in matters where such terrible consequences are constantly following? Who should decide when none but God could know the outcome? Grant was allowed to go on, and it eventually transpired that he was wiser than all of us. He knew exactly what he wanted to do, and he did it. May God help us now in this present crisis.—I am very, very thankful to you for the encouraging words you have given

en GLEANINGS. What little I have been able to accomplish I never could have done had it not been for the kind and earnest support and encouraging words from God-fearing friends like yourself.

### BEE-DIARRHŒA: WHAT DO WE KNOW ABOUT IT?

MAY IT BE THE FAULT OF THE QUEEN AND NOT THE BEES?

FOR the past three or four years I have been of the opinion, that if our bees could fly every two weeks or oftener we should never know of such a thing as bee-diarrhœa; and while I am of the same opinion still, as far as our losing large apiaries is concerned (with the above conditions present), yet I have had an experience the past fall and this winter which shows that bees can have the bee-diarrhœa when they have a chance to fly often. This experience also points toward the trouble being caused by the queen, and wholly upsets nearly if not quite all of the theories which have been advanced regarding this dreaded disease of the bees.

The fore part of September, 1885, I commenced to prepare my bees for winter by looking each one over carefully, taking out the frames to see if they had honey enough, and to know their condition generally, as I gave on page 731. In this way I prepared a few colonies a day, along as I had time from my other cares, so that I did not fully complete the job till October 15. In thus preparing them I found that only 5 out of the 95 colonies had any brood in their hives, four of which had young queens which began to lay about Sept. 25th, the colonies of which were formed by uniting several nuclei together, and one other which was the colony which cast the third prime swarm of the season; consequently it had one of the first queens reared during 1885, as the colony was allowed to rear its own queen. This last-named colony happened to be one of the 15 last gotten ready for winter, and was prepared on Oct. 12th. At this time I noticed a little patch of brood in one comb about as large as a silver dollar, which looked similar to the first brood started by a colony in the spring. The queen looked rather larger than the other queens in the yard, and more as a queen does in early spring. They had plenty of well-ripened basswood honey, and a fair amount of pollen. A few days after this the hive was packed for winter, as were the most of the rest of them at that time. From the 20th to the 31st of October, all my bees had three or four flights, as they also did on one or two occasions in November, at which time those colonies formed by uniting nuclei, which had brood in them, carried in pollen from the witch-hazel quite freely; but from long-continued watching I failed to see a bee carrying pollen into the hive above mentioned. Instead of this they acted as nearly all colonies of Italian bees do in early spring; *i. e.*, they were standing thickly about the entrance, with many bees flying; those not flying were acting as if they were trying to guard the hive from robbers. As it came late in November I would see them flying upon days when not a bee would be stirring from any other hive, and now they began to show outward signs of diarrhœa, as they would spot the tops of the hives about them in their flights.

I was resolved, that if a day occurred that was warm enough to handle bees I would open this hive and see what I could learn regarding them; but so far there has been but one day on which this could be done, and that was when I was at Detroit at the bee convention. The day before Christmas they flew some, with the mercury at 44°, but I did not think it best to open them when so cool. The next day after I got back from Detroit I raised the hive from the bottom-board and found several immature young bees, all of worker size, on the bottom-board, at which time I cleared off all the debris found. At that time the hive seemed filled with bees, some of which flew out while I was cleaning the bottom-board, spotting the snow, and soon dying, as all bees do when they have the diarrhœa, and can get out. I have again this morning cleared the bottom-board, getting about a quart of dead diarrhœotic bees, together with quite a number of immature bees, the most of which are now dwarf drones. There was also a large quantity of as nice white wax scales fallen to the bottom with these dead bees, said scales being as perfect as any I ever saw in July. The bees, instead of occupying the whole hive, are now reduced so that they are between only five combs, occupying four spaces. Those on the outside of the cluster (if they can be said to be clustered) are bloated to nearly bursting, while the combs and surroundings are soiled, and smell as badly as do such hives having had diseased colonies in them, and dying in March. In fact, to-day, Jan. 1, 1886, they are in the last stages of bee-diarrhœa, which disease, it is evident, began about Oct. 1, when that little patch of brood was started. Now, what caused it? Did the queen and bees know that she was to become a drone-layer, and thus try to rear brood out of season so as to get a new queen? Or what did that desire for brood spring from? Surely it was not cold nor confinement nor dampness, nor their being obliged to eat pollen, nor any of the many causes heretofore given as producing said disease. Perhaps friend W. F. Clarke, of Canada, will say it was lack of hibernating. Well, perhaps it was; for all the other 94 colonies, both in the cellar and outdoors, even to the four colonies made of united nuclei, are in that quiescent state Mr. Clarke calls "hibernation."

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., this matter was discussed some years ago, you may remember, and the thought brought prominently forward then was, that it so often happens a colony will winter all right, year after year, so long as the old queen lives; but when a new one takes her place, then we have losses in wintering. Almost every bee-keeper has had particular hives that always wintered nicely, and gave a good yield of honey, and large increase in bees, until the queen was changed or superseded, and then troubles came. I have been strongly of the opinion for some time that queens sometimes have much to do with this matter; at other times the peculiar good qualities of a set of combs seem to have something to do with it; and, again, the location of the hive, where wintered outdoors—its protection from the prevailing winds, etc., has seemed a factor. I am glad you have called attention to the matter of the queen in regard to this matter of dysentery, for may be there is more there than we

have suspected. You know the "nameless disease" is often cured by exchanging queens.

### FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

WORSE AND WORSE; BUT, GREAT IS TRUTH, AND WILL PREVAIL.

**W**E copy the following from the *Chicago Advance* of Dec. 31, 1885. You will notice that it is not hearsay, but something from the editor's own personal experience.

Pliny, the historian, laments that in his degenerate times men had learned to imitate realities and practice frauds upon the people. In proof of this he mentions a case in which Egyptian priests, who understood the natural sciences better, perhaps, than any others in the world at that time, had palmed off on the public counterfeit precious stones. They had learned to color glass, and take stones of varied values and cement them so that the untrained eye could not distinguish the combination from real gems. But what would Pliny think if he lived to-day and found what progress had been made in the art of imitation? We have laws against counterfeiting money, but none against adulterating food. I believe that thousands of people every year are seriously injured, if not killed, by the use of impure food.

I have recently had some personal experience in this matter. I tried in vain to get pure butter at prominent groceries in this city. It was oleomargarine, or something else, every time. Then I sent to the country, and procured some real butter from a family that I knew, but when it came it was artificially colored and wholly unpalatable. At last by writing to the interior of Iowa to a personal acquaintance I succeeded in getting pure butter. The time was, until recently, that if one got honey in the comb, he was sure about it. But all that is changed. Men have learned not only to manufacture the comb much more rapidly and cheaply than the bees can do it, but now fill it, capping the so-called honey cells by machinery, and sell it at a lower figure than any at which the real honey can be produced. Some of our readers know unscrupulous men in the country who having bought a few hives of bees, almost immediately began selling great quantities of honey in the comb. They procured it from the manufacturers of the adulterated article, but any one familiar with the taste of the real honey easily detects the fraud. I went to one grocer in this city, who had recently purchased, from Ohio, a thousand pounds of what he honestly supposed real honey, and convinced him in five minutes that almost the entire quantity was made up of syrups, deftly secured in the comb. He simply said, "What are we coming to?" We have no State laws sufficiently guarded in their provisions to reach these rascals, and punish them as they deserve. It may be permissible to manufacture the stuff called oleomargarine, or butterine, but to sell either as butter should be made a criminal offense and punished accordingly.

One of the most unique cases of adulteration that has yet been mentioned is reported from New Jersey, where a man was arrested a few days ago for selling false eggs. The shell was made of some translucent substance; the white of an albuminous preparation, and the yolk of saffron and carrot. Strangest of all, they made a very good omelet. The fraud was detected only when they were boiled. The ingenious manufacturer exhibited his wares to a New York dealer, and declared that they could be made on a large scale for half a cent apiece, while real eggs cost from three to four cents. I should think these conspirators would be ashamed to look an honest hen in the face.

You will notice that the editor goes back to Pliny, and laments the degenerate times. He does not tell what he has heard, nor

does he copy from other papers, but he tells his own personal experience. In regard to the butter part of his story, I will leave that to the dairy people and dairy journals; but, Mr. Editor of the *Advance*, we beg leave to inform you that men have not learned to manufacture comb, and fill it with honey or any substitute.

If you have a desire to be fair and just (and the editor of a Christian journal certainly should have), we ask you to give us the name and address of the grocer who purchased that thousand pounds of honey from Ohio, that we may correct him as well as yourself; and when you give satisfactory proof that that comb honey was manufactured that you saw, we will pay you \$1000 for the information. In behalf of the State of Ohio I also call upon you to give the name of the man from whom that honey was purchased.

"What are we coming to?" surely. In regard to your wind-up on the egg business, we beg leave to submit to you the article in our last issue on this matter. Now, if you refuse to notice this, or to do simple justice to a large class of people whom you have injured by your statements, we, as a body of bee-keepers, refuse to subscribe to your paper; and we call upon Christian people in general to aid us in bringing about justice. We are thus vehement in the matter, because, month after month, agricultural and religious papers persist in publishing such damaging false statements; and not only that, they almost without exception refuse to correct the mischief they have done. The *Rural New-Yorker* and *Prairie Farmer* have given us a hearing; but the rest of the press, at present writing, seem almost wholly given over to persistent falsehood. They remind us of the text, "He, that being often reproved hardeneth his neck, shall suddenly be destroyed, and that without remedy." and I have not a bit of doubt but that the warning in the text will be ultimately fulfilled. No doubt the man who manufactured (?) artificial eggs will be ashamed to look an "honest hen" in the face; but, how about the editors who get up these stories?

Since the above was written, Ernest has returned from New York. Among his wife's relations is an inspector, appointed by the State of New York, to look up artificial butter, or oleomargarine. This State inspector visits the restaurants and groceries in the city of New York. He does not tell them who he is—goes into a restaurant as anybody does. Whenever "oleo" is given him for butter, the proprietor is punished according to law. Well, how much do you suppose he has found that was not butter? comparatively little—at any rate by no means such a large amount as the newspapers state. Very likely you will say he is bribed; but, dear friends, we happen to know better. Now, of course, I do not know about butter as I do about honey and—eggs; but I will submit to your own good sense, readers of *GLEANINGS*, is it not quite probable that the editor of the *Witness* tasted some poor butter, and jumped to the conclusion that it was manufactured? By the way, another fact has come out in regard to artificial honey. A good many have been calling poor dark hon-

ey in the combs, especially where it had a disagreeable flavor, manufactured "stuff." Most of the readers have had some experience in honey-dew stored in combs, and know to their sorrow that it is *stuff*, without question, but not manufactured, by any means. If one were going to manufacture honey he would probably have something a good deal better than a good deal of the bug-juice that the bees have gathered and put into combs. I beg pardon for using the term "bug-juice," but nothing else would fit under the circumstances.

### A SLEIGH-RIDE OF 150 MILES.

From 400 to 850, and Over 20 Tons of Comb Honey.

PURSUIT OF BEE-KNOWLEDGE, AND THE RESULT.

**D**URING the last week of March, 1885, the sleighing being excellent and the weather fine, and having business near Rutland, Vt., 40 miles from my home, I resolved to perform the journey with my little black pony "Nig."

The journey was easily and safely made; and the next day at 3 o'clock, my errand having been accomplished, I called for a map of Vermont, and sought out the location of Bristol, the home of A. E. Manum. I found I should have to travel about 35 miles further to reach that highly favored place. At 8:30 in the evening, Nig had put 23 miles under her feet, and we found ourselves at the Addison House, in Middlebury, Vt.

While entering the State of Vermont from New York, one would think, from the nature of the view before him, that very hilly roads were to be encountered; but an agreeable disappointment is in store for the traveler. The roads follow up the streams; and though there are rugged mountains upon each side, the road is comparatively level; and as we pursue our winding way the scenery is ever shifting, showing us beautiful and romantic views, and which occasionally reach the point of grandeur.

From Rutland we follow up the Otter-Creek Valley; and from the amount of dairying and stock-raising that is carried on here I should judge it to be a good honey locality; and from appearances there are many locations that are not occupied with bees. There is much alsike clover raised upon these low meadows, and an abundance of basswood upon the mountains.

Learning that J. E. Crane, one of the great bee-men of Vermont, had moved to Middlebury, I soon found him and had a brief visit with him. At that time Mr. C. had about 800 swarms, in several apiaries. It is needless to say that Mr. C.'s yield of box honey is many tons. Mr. C. occupies a new house, which is a model of taste, and, I suppose, so fair an exterior must have a convenient interior.

A ride of 12 miles from Middlebury brought me to my objective point, Bristol. This little manufacturing village nestles snugly in a notch in the famous Green Mountains; a considerable stream tumbles through here, and gives power to several manufactories for working up wood. Among these is Mr. Manum's manufactory of bee-hives, and the famous white-poplar section. The manufacture of these is now conducted by Messrs. Drake & Smith. I found Mr. M., as we should find all bee-men who

count their colonies by the hundreds, busily engaged in preparing for the coming season. I told Mr. M. that the object of my journey of 75 miles was to learn, if possible, how to winter bees.

After looking over the factory we adjourned to his residence, where is located his home apiary. At the time of my visit Mr. M. had about 400 swarms, in several apiaries. The well-known Bristol hive is used. This and the N. E. hive, manufactured by H. D. Davis, are very similar, and are largely and successfully used throughout the N. E. States for wintering outdoors. The packing used by Mr. M. is poplar shavings. The peculiarity of this wood is the amount of water it will absorb, and the shavings will absorb much moisture, and not become damp. We examined several hives, digging down through the loose shavings, and turning back the quilt. We found the hives full of bees, and very lively. The entrance to this hive is from the under side toward the center, and nearly all dead bees soon find their way to the ground. I think the hive would answer for W. F. Clarke to try his hibernating theory with. Mr. M.'s method is to leave a portion of honey and pollen. These frames of honey are all placed at one side of the hive. If there is any brood it is placed at the other side, and empty combs inserted, and the bees are fed up on granulated sugar. The stores are in such shape that the sugar is mostly consumed through the winter, while the honey and pollen are consumed in the spring. Mr. M. claims that honey is far better than sugar for stimulating brood-rearing in the spring. Not only the method of preparing for winter, but the hardiness of the bees, is of importance; and Mr. M. claims to have bred that good quality; and if we are to judge from his successful wintering of them, he has attained success in that direction. His yields of honey have also been remarkable. The 400 swarms in the spring increased to 850, and a yield of upward of 20 tons of comb honey, I believe, has been obtained. One swarm on scales gained 91½ lbs. in three days—30, 30½, 31, during basswood bloom.

Mr. M. has many appliances of his own invention. His appliance for reversing frames is simpler and better than anything I have ever seen. It is simply a piece of hoop iron, one end bent to form a projection and hook; the other end is provided with a hole by which it can be attached to the middle of the end-piece of a frame. A small notch is sawed in the frame for the hook to catch into.

I could spend but a few hours with Mr. M., and at 4 o'clock Nig and I were on our way back to Middlebury. The next day we got over the distance of 50 miles through another portion of the State, and parallel with Lake Champlain. We passed several apiaries of Bristol hives, and longed to call upon the owners; but the beautiful snow was wasting, and we had to speed homeward or encounter much bare ground. After passing the night in Whitehall, an easy drive put us home again.

As a result of the trip, I am wintering 100 swarms of bees outdoors, not in Manum hives, but packed very similar to them, and fed to a certain extent on granulated sugar. I also have nearly 100 in the cellar. Should any one desire a more full description of Mr. M.'s method they will find an article from his pen in Alley's Handy Book, latest edition.

Hartford, N. Y., Dec. 31, 1885. J. H. MARTIN.

I am sure, friend M., we are very much

obliged to you for your vivid account of your profitable visit. At the Detroit convention a pleasant-looking man came up and said he wanted to shake hands with his benefactor, or something of that sort. I asked him what he meant by that, and he said he was A. E. Manum, and asked me if I remembered the time I advised everybody to send for a sample of his white-poplar sections. I told him I ought to remember it, because it was a pretty hard struggle with conscience before I decided to admit that somebody else was making better goods than I was, and to advise the friends to send there for them. He said my notice so overwhelmed him with orders that it gave him his first start in business, and enabled him to build up such an apiary as friend Martin tells us about.—Over twenty tons of comb honey as the product of a single season! Just think of it!—In regard to the reversing device used by friend M., I will explain that it is quite similar to our own, only that it is made of a strip of heavy hoop iron; and the last end, where it comes up over the top-bar, is turned straight downward, and snaps into a saw-cut made at the proper place across the top-bar to the frame. This device was submitted to us some time last summer, but we can not remember now who sent it.

### DISTURBING BEES IN CELLARS.

FACTS AND SUGGESTIONS FROM C. C. MILLER.

I CAN not believe it is a good thing for bees to be disturbed in winter, and yet I am obliged to confess it is by no means so harmful as I formerly thought. One winter I had a hive so placed that it got a pretty good kick about once a day. I could not see that it was any the worse for it.

#### LENGTH OF LIFE AFTER STINGING.

In trying to ascertain how long a bee will live after losing its sting, the experiments, so far as I recollect, have been faulty in one particular. The bee, after losing its sting, is caged or confined, and this alone would shorten its life. To make the experiment at all satisfactory, an uninjured bee should be confined along with the stingless one, and the difference in length of life noted. Care should be taken that the bees should not be injured in handling. I have many times seen so much of the viscera of the bee come away with the sting that I can hardly believe the bee could live very long; but I have a good many times been surprised to see bees that showed evident marks of having lost their sting, lively and bright in appearance, in colonies that I had no reason to believe had been in any way disturbed for a day or two, and no stinging going on at the time of my handling them. Of course, they *may* have stung some person or other bees, without my knowledge, but I am afraid we don't know much positively about this matter.

#### BARHEADED BEES.

I have just been looking in A B C to find what Mr. Root says, but can't find it. I feel pretty sure, however, that somewhere he has said it is all right and proper to have young bees in cells nearly ready to hatch, with no capping over them. For several years I have had the impression that such things were not all right, and rather settled upon it that,

when I found bareheaded bees to any extent in a hive, I wanted a new queen in that hive. I still lean in the same direction; but until the past summer I had no idea what was the immediate cause of the trouble. I *think* it is the wax-worm. Did you never notice that the bareheaded bees were more or less in rows, somewhat as you leave uncapped cells when digging out their galleries in search of worms? Another thing: Did you ever see any bareheaded or uncapped grubs older than the ordinary age for remaining uncapped, say about a week from the egg, and yet so young that the head of the young bee was not plainly formed? I don't think I ever did. Now, the young bee is ordinarily sealed up about 11 days; and if the bees leave them unsealed, we should be able to find them at all stages of development; but I never saw one unsealed presenting the appearance of a larva within two or three days after the time of sealing. Since writing the above I find this in A B C: "You can rest assured that the bees almost always know when it is safe to let the children's heads go uncovered." Now, I don't quite think they ever leave them uncovered, till the wax-worm uncovers them, or runs a gallery over the bees in the cells for the bees to dig away, thus leaving the cells uncovered. If the bees think it safe to leave some of them uncovered, why not in larger patches? and yet, did you ever see a patch so large that you could lay a silver dollar upon it, and have all the cells under it uncovered? Perhaps by observing next summer we can settle the matter.

#### COLOR OF POLLEN.

It is a thing of some interest, and at times may be of importance, to know the sources of pollen; and it would be a help in this direction if we knew the color of the different pollens. Suppose the juveniles, and elders too, for that matter, send in, next summer, lists of the different colors of the pollens they have observed by seeing the bees at work on the plants. From this, Ernest might make a pretty full table; and then if it were put in the A B C it could be referred to at any time. I will start by giving: Plantain, white; poppy, black (I think likely, however, the color of poppy pollen may vary with the color of the flower); burdock, I think it is white, but I'm not sure; then I was going to give white clover, brown; but I don't feel very sure without having it before me, showing pretty plainly that my powers of observation have not been as carefully educated as they should have been. For the young, this may be an important step in their education.

#### LENGTH AND CALIBER OF SUB-VENTILATING PIPE.

Perhaps we are not far out of the way in settling upon three or four feet as the best depth, all things considered, to lay tiles for sub-ventilation. Now, what is the best length, and what sized tile is best? The larger the pipe, the more air it will admit, but, at the same time, the colder it will be. The longer the pipe the warmer the air; but a pipe a mile long would probably not make the air much warmer than one 200 feet long. If one tube is made of four-inch tile, and another of six-inch, the six-inch one will admit more than twice as much air as the four-inch, but it would have to be longer to admit air as warm as the four-inch. If the cost of the tile be the main item of expense, then it may be best to have six or eight inch tile, and run it deep enough and far enough to secure the desired warmth. If labor is principally considered, it might be better to

lay two four-inch pipes about a foot apart. This would require only one trench to be dug, and give warmer air than if larger tile were used. I wonder if we can get answers to these questions: What sized tile is best, in general, to use? When laid, say four feet deep, how long a pipe of six-inch tile will admit air of same temperature as 150 feet of four-inch tile? My sub-ventilating pipe is of four-inch tile, laid three to four feet deep.

C. C. MILLER, 179-340.

Marengo, Ill., Dec. 28, 1885.

After I had written my reply to Nettie Cranston, page 70, we received the above communication from you. You observe that I took the same ground; namely, that we are liable to err in supposing that bees *invariably* die after losing their sting. Since your opinion confirms what I have read somewhere, I feel better satisfied that a bee *may* live a number of days after the loss it has sustained; but I do not see why caging on the Good candy necessarily hastens the death of an injured bee when the latter, according to the reports so far, survive not more than 20 hours, and a perfectly sound bee, with similar treatment, lives on an average a week or ten days.

If any one by actual observation knows of a case in which a bee deprived of its sting lived and gathered honey, let us have it. I have seen instances that led me to suppose that such might be true, but I never could fully convince myself.

Thanks for your suggestion in regard to the color of the pollen; but a juvenile has already anticipated your idea, as you will see, page 872, last year. You notice the little girl has given the color of pollen from quite a variety of flowers. When the weather opens up I intend to get the juveniles to make a collection of pollen, nicely arranged on a card, much in the way that bugs and geological specimens are gotten up. The sources of the pollen are, of course, to be plainly written below the specimen. With a collection of this kind an inexperienced hand could easily tell what the bees were working on, providing the specimens were accurately named.

ERNEST.

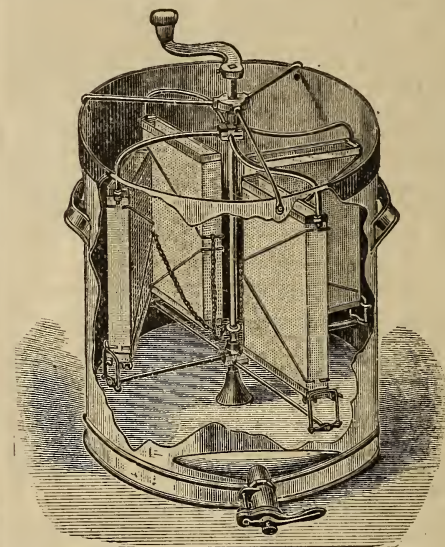
I feel sure, friend M., I have seen patches of bareheaded bees a good deal larger than a silver dollar; but it is so many years since I have given the matter very much attention, I may be somewhat mistaken. I know we marked the combs, and the bees hatched out perfectly formed, and all right so far as we could observe. As to whether they were capped a spell and then afterward uncapped, I can not answer; but I suppose they had been, for I never noticed those uncovered until they were almost ready to hatch, fully formed, and partially turned dark. My impression is, the bees opened them for some reason best known to themselves. The openings are nicely arranged with a little edge turned up, something like cells just under the process of construction.—In regard to marking bees that have lost their sting, I would suggest putting a drop of white paint on their backs. This will enable us to hunt them out, even though they have the regular run of the hive.—In regard to sub-earth ventilating-pipes, you say yours is a four-inch tile laid three or four feet deep; but I

can not find in either of your articles how long the pipe is. Please give us the length, and then we shall have something to start on.

### STANLEY'S IMPROVED HONEY-EXTRACTOR.

A HONEY-EXTRACTOR TO REVERSE THE COMBS BY TURNING THE CRANK IN THE OPPOSITE DIRECTION.

OUR readers will recollect that we have described this machine before; but in the absence of a good engraving we could not give a very clear explanation. Our own engravers have, however, tried their hand on it, and give us the good picture shown below.



STANLEY'S AUTOMATIC HONEY-EXTRACTOR.

You will notice that the baskets to hold the combs are hung by a sort of hinge at the top, with a kind of double hinge at the bottom. This double hinge is after the plan a great many gate-hinges are made; viz., a double bearing, so the frame is thrown off to one side as it is pushed back either way, letting the force of gravity operate to bring it into position again. Well, around the shaft, toward the bottom, you will notice a little ring. Four chains are attached to this ring, with their other ends fastened to the swinging comb-baskets. Take hold of the crank and give a quick impulse, and the baskets, by "mutual consent," swing off their centers. As you continue to turn, centrifugal force would swing them against the side of the extractor were it not for the four chains just described. The little ring jumps up to about the middle of the shaft, and the four chains are drawn taut.

When you have extracted the honey from one side of the four combs, stop long enough for the baskets to commence swinging toward the center, then start up the other way, and they by common consent turn t'other side out. The machine works very

prettily. We can furnish them at Stanley's prices, as given below:

The following is our list of prices for machines taking the L. frame, 9 $\frac{1}{8}$  x 17 $\frac{1}{2}$ , outside measure:

2 frames \$12 00	4 frames \$21 00	8 frames \$40 00
3 " 16 00	6 " 30 00	10 " 50 00

The above prices are for machines with no gear, but with crank attached to the top of center-strips instead. We add a good strong horizontal gear for \$1.00 extra, or our best vertical gear with crank at side of can for \$2.00 extra.

If any size of frame is used except the L. frame, please mail us a sample frame in flat, and write, stating how many combs you want your machine to carry, and we will give you prices by return mail. Do not send measurements, trusting to that to have your baskets made, but always send a sample frame, as we absolutely refuse to make baskets for any other than the L. frame unless we have one of your frames to work by. *This rule must be observed in all cases, and then we will guarantee our machines to work perfectly.*

The machine is represented with a plain crank on top of the shaft, and for four combs I should most assuredly prefer it in that shape.

### THE NAMELESS BEE-DISEASE.

SOME FACTS AND SUGGESTIONS IN REGARD TO IT.

**L**AST September I noticed one of my colonies acting strangely. The bees began dragging out others that were not yet dead, but acted as though they were partially paralyzed.

They would lie on their sides, and their legs would keep constantly twitching. Sometimes a bee with its body greatly distended would rush out of the hive with its wings spread out and in constant motion, and hurry off into the grass, as though trying to escape from something in pursuit. The queen was a young one that had got mismated, and the colony had plenty of natural stores, for it had worked better than any colony I have. Thinking that the trouble might be in their stores, in November I gave them all the sugar syrup they would take, which was not much. I thought I could see some improvement, but it may have been a mistake.

January 5 was warm, so all the bees had a good fly. They are all in your chaff hives. A good many dead bees were drawn out of this colony, some looking as though their insides had been eaten out. I caught one that was largely distended, and fluttering off into the grass, and I put it under a microscope. Its body seemed to be filled to the point of bursting with a pale amber-colored fluid which appeared to have exuded in some way, and covered the body with a coat of varnish. The bee panted badly, and kept up a constant jerking motion with its legs. It died while I was examining it. Before it died it voided a perfectly white substance, hard and glistening, and afterward a hard amber-colored substance. I then took a dead bee just drawn out, and put it under the microscope, and found its body covered with the same thick varnish that had hardened, somewhat, and could be scraped off with my knife. I think these diseased bees burst open, and the others ate out the contents of their bodies; for in taking out the dead bees from time to time I have always found live ones in the bottom. Dr. Scranton, who lives near me, has some colonies troubled this way. Is this the "nameless disease"? A. POTTER.

Bennington, Vt., Jan. 7, 1886.

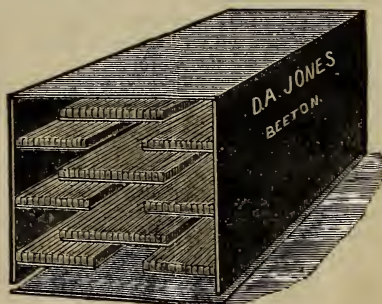
Friend P., you have described the disease

exactly, and it is this glutinous liquid, probably, that causes the shiny appearance of the black, emaciated bees as they creep out from the entrance of the hive.

### JONES'S FEEDER.

D. A. JONES'S WINTER BEE-FEEDER; A FEEDER THAT WILL PROBABLY WINTER BEES WITHOUT ANY COMB.

**A**MONG a lot of other inventions brought to Detroit by our clever and liberal Bro. Jones was the above bee-feeder; and before describing it I want to say that the more credit is due friend J., from the fact that he has very little inducement to exhibit these things in the way of making sales, because of the duty. He shows us his inventions, explains to the fullest particular how they are to be made, and does not receive one copper, and no prospect of receiving any. It is solely his generous good will to the bee-keeping brethren.



FEEDER FOR FEEDING THE GOOD CANDY.

The arrangement is a little box about six inches square and a foot long. The sides are nailed into the ends; but before the box is nailed up, the ends have grooves plowed in them lengthwise, about an inch apart. These grooves are made about half way through the end-board; and sticks,  $\frac{1}{2}$  inch by  $\frac{1}{2}$  inch, and as long as the end-board, slip into these grooves, projecting enough to hold the grooved shelves shown in the picture. These shelves are made by running strips,  $\frac{1}{2}$  inch thick, over a set of dovetailing saws, so as to give them the fluted appearance shown in the picture. The boards are of two widths, as you notice. Those against the sides are  $2\frac{1}{2}$  inches wide. The middle ones are  $3\frac{1}{2}$  inches. We copy the directions for use, and the prices, from the C. B. J. for November.

Take pure pulverized or granulated sugar—the former preferred—and stir it into honey, nicely warmed up, until the honey will not contain further additions. Allow it to stand in the dish until both are thoroughly mixed through each other, then place in feeders and set them on top of the frames, packing all around nicely to allow no heat to escape.

Each, made up,	- - - - -	.30
Per 10,	- - - - -	2.75
Each, in flat,	- - - - -	.20
Per 10,	- - - - -	1.75

D. A. JONES.

Our friends who live in Canada will, of course, get them from friend Jones; and those in the United States who would like to try them can have them at the above prices from our establishment.

## A GOOD REPORT FROM TEXAS.

HONEY FROM THE BROOMWEED; FROM 70 TO 100,  
AND 10,000 LBS. OF HONEY.

**W**HEN giving you my report in Oct. GLEANINGS, page 679, I believed our honey crop to be all gathered; but since that time I have taken 2000 lbs. more from the same apiary, making a total of 6500 lbs. The above report is only from my home apiary, of which I began the season of 1885 with 70 swarms, and have increased to 100 by natural swarming. The last 2000 lbs. has been from broomweed alone, and is the first time it has yielded in the four years I have resided in Texas, and it is entirely different from any honey I have ever seen before. It has a peculiarity of becoming solid without granulating; in color it is white, with a yellow tinge, and will become solid in 24 hours if it is exposed to the cold.

On Christmas day, bees were making honey from the mistletoe, which is now in bloom.

My honey crop this season was over 10,000 lbs., and has netted me 8 cts. per lb. My plan of selling is to allow only one firm to handle my honey in each town or city, and to sell on its merits alone. One house has sold 2250 lbs. this season for me.

I have sold out my sheep interests, and next season I shall devote my time to bee-keeping; and if the season is good I shall try to make a good report.

I have a water-wheel for motive power to run my saws in cutting out hives. It is one of my own construction, and works finely. I shall use only the Simplicity hive, as for convenience in handling, cheapness, etc., I think it stands without an equal. Wishing you and GLEANINGS every success in the new year, I will close. WM. WRIGGLESWORTH.

Crawford, Texas, Dec. 28, 1885.

## FRIEND CLARK'S TRIALS AND SUCCESSSES.

FROM 4 TO 18, AND 200 LBS. OF HONEY.

**I**BEGAN to keep bees in the spring of 1878 by the purchase of one old box hive. I was fortunate enough shortly after to spy the advertisement of A. I. Root in some journal or other, and ever since I have been a very interested reader of GLEANINGS. I went through the A B C, Quinby's New Bee-keeping, and other such as I could get hold of, devouring the entire contents with a relish that would have done credit to a Doolittle or an A. I. Root; but I have never realized any great yields such as I read of, nor have I been able to number my colonies by the hundreds, but I have received a good fair return for all money and time spent, besides the pleasure and recreation, which were worth a great deal to me, for I have been afflicted with heart disease for the last seven years, and it has grown so serious of late years that I have not been able to do any hard work at all. To make things worse, my wife was taken down with fever at the birth of our little girl one year ago, and has never been able to rise from her bed. God only knows whether she ever will or not. It seems awful hard, but we believe all things work together for the best to those who love and serve the Master. But, to return. In the fall of 1884 I had 22 colonies, very heavy in natural stores, but it was honey-dew which hardened in the cells as fast as gathered, and could not be thrown out with the extractor. Hav-

ing no empty combs to feed up on, I was compelled to let them take their chances, expecting the worst, and I wasn't disappointed; for 19 out of 22 died, and the three that were left were not able to cover one frame each. But I pulled them through, and bought one more. From the four I took 200 lbs. of section honey, and increased to 18, and one went to the woods. I doubled back to 14 in the fall, which have clover honey to winter on, so we feel comparatively safe for next season. Our honey was all sold at 25 cts. net.

J. A. CLARK.

Summersville, Pa., Dec. 23, 1885.

## A POSTAL-CARD LETTER, WITH SEVERAL MORALS TO IT.

SENDING FROM FLORIDA TO OHIO FOR QUEENS;  
TEMPERATURE OF WELLS IN FLORIDA, ETC.

**F**RIEND ROOT:—I thank you for your reply to my inquiry; but by accident (if accidents ever do happen) I found that a former member of your business family, Miss N. Adams, was engaged in bee-keeping about six miles from here, and from her I obtained the needed queens. In view of the experiments that Ernest has recently been conducting, it may be of interest to you to know that the temperature of water as it comes from wells in this part of Florida is about 70°, varying a trifle with the wells. Bees are gathering pollen nicely. Not much honey. The letter was written with a Hall type-writer, made by the Hall Typewriter Co., New York. C. H. LONGSTREET.

Mount Dora, Fla., Dec. 30, 1885.

Now, friends, you see that friend L., who writes the above, wrote us about queens; but by accident, or providentially, if that is a better word, he found out that one of our former pupils, Miss Adams, was raising queens for sale, within only six miles of his place. Just think of it! Very likely it would have been nothing very strange had we purchased queens of Miss Adams, had them shipped all the way from Florida clear up here to Medina, and then sent the same ones right back again to fill his order, when, had we known enough about each other, he could have got the queens within six miles of his home. I like to sell queens, and I like to sell any thing when I can benefit the purchaser as well as myself; but it does me a great deal more good to hear of some of our former employes taking our trade by doing the business in the way above mentioned; that is, where they can do it so much better and so much easier.—Why, friend L., if you do not have any water to drink out of your wells that is colder than 70 degrees, I am real sorry for you. Perhaps you have not got down deep enough. Can some one give us the figures from Florida on artesian wells, say several hundred or a thousand feet deep? May be I shall have to give up my pet theory, that the temperature of the earth is about the same, either north or south, when we get down deep enough.—Now in regard to the concluding sentence. The letters have been so very nicely written that I asked the writer what kind of a type-writer he used, and you have the name and address of the maker. I am sorry, however, that he did not tell us the price.

## WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

*Continued from Dec. 15.*

### CHAPTER VII.

For dust thou art, and unto dust shalt thou return.—GEN. 3: 19.

While on the cars on my way to New Orleans, nearly a year ago, I wrote something like this: "I have just made a great invention." The above was put into an article for GLEANINGS; and as months passed and nothing further was said in regard to the matter, several of the friends inquired, "What about the 'great invention'?" Well, the reason why I delayed giving further particulars was because it is a rather delicate subject to handle; and I do not know now but that some of my good friends will turn away in disgust from what I have to say in regard to a matter that seems to me is one of the great matters before the people of the present age. My thought was directed into this channel by the imperfect arrangements on many of our best railroads for the accommodation of the traveling public in the way of water-closets. On my return from New Orleans, while occupying a beautiful cushioned seat in one of the best palace cars, I was suddenly surprised and annoyed by a most intense steaming-up of foul odors. At first I looked at my fellow-passengers suspiciously. Then I noticed that my seat was not very far away from the closet. And this was in a palace car that cost an immense sum of money. The makers had taken every pains, and gone to great expense, in order to have these things fit for cultured and intelligent people. In some of our hotels we have found much the same state of affairs. It has seemed to me that this is the great unsolved problem of the age. Princely hotels, steamboats, palace cars, schools and colleges, expositions, and other places where people of intelligence and culture do congregate, have been planned and devised in vain. Money has been expended lavishly, but only to meet disappointment, and oftentimes disgust. One great difficulty in this matter is the stubbornness of humanity. People will be—I dislike to say it: but, to come right down to the plain truth, the word to be used is—*nasty*. Even well-bred people, or at least those whom we should expect to be well bred, and to be neat and orderly in their habits, look on and see how money has been expended, and how carefully the plans have been laid to make these necessary places o

they can be easily kept sweet and clean, but they don't care.

The most *perfectly awful* place of the kind I ever saw anywhere in my life was at the Ohio State Fair. I know it is not in good taste to complain and find fault, but I know there are others like myself who feel almost desperate about the way this matter stands. When I meet the great minds of our age; when I hear them talk at our conventions; when I witness what mind has succeeded in accomplishing with inert matter and nature's forces, I feel as if man were created in God's own image; and when I meet good earnest Christian people, I feel strongly that there is a God part in us all, as well as a remnant of a savage and animal nature. At such times I feel proud of my fellow-men; but when I over and over again meet such sights as I have hinted at, if I have not described them, a kind of feeling comes over me that man is largely animal still, and an animal, too, of which some of the four-footed dumb brutes might be ashamed.

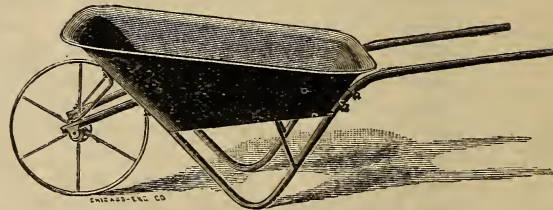
When I call attention to these things I am met with the remark, "Well, what is a body to do?" or, "I do not see that there is any thing to do but to put up with it as the rest do." Probably the bad state of affairs comes about as it does at our country schoolhouses (or, if you choose, our town and city schoolhouses). Somebody goes a little way in transgressing the rules of neatness and propriety, and the next one thinks that, as that seems to be the fashion, there is no way but to follow suit; and probably, without intending it, he is a little worse than his predecessor, and pretty soon all scruple is trampled under foot, and then we have sights that *are* just awful. Our sweet, clean, well-dressed little boys and girls are forced to see sights that pretty soon break down all that a fond mother has accomplished at home in the way of instilling into the little minds a love for cleanliness, order, and purity. I hope this state of affairs is not universal. I can not bear to think it is. And, by the way, if any of my readers know of a schoolhouse, college, or academy, where they have something to be proud of in this direction, and keep it up month after month and year after year, when-

ever I come that way please ask me to come and see it. I know there are private homes where these things are managed nicely, and even where money is not plentiful, as well as among the rich; and I have many times inwardly thanked God for these exceptions. One case of this kind comes to my mind now. It was a minister's home. His salary was not large, and the good wife was obliged to do her own work, even though three little ones claimed her as their mamma. But these little ones evidently took as much pride as their mamma did, in being careful and cleanly in all their habits, and in making the best of such accommodations as were to be found in a *rented* home, and quite an humble one at that.

Well, how about that invention? Why, it was an invention in this line that made me pencil down, while riding in the cars, that I had "just made a great invention." I felt sure then that it was, and I feel sure yet. It would prove so, could humanity be made or induced to fall in with the end to be accomplished. When I got home I submitted the matter to my wife, before putting it in print, and she pointed out objections that I had overlooked, so I reluctantly kept still about it; but now I will tell it to you, for it is going to be a factor or step, perhaps, in getting at something which I think is a real improvement.

No doubt many of you will ask what is the matter with the dry-dust arrangement—such a one as I mentioned finding at the Agricultural College in Michigan. Well, in the first place, even if the dry dust will work splendidly year after year in such a home as Prof. Cook's, or where you have only intelligent and cultured people, yet years have passed since this was fully explained, and I have not yet found a *public place* where it was adopted. The traveling public would laugh at you, probably, if you should suggest the idea. They are too impatient, too much in a hurry, and too selfish, perhaps, to bother themselves over any such matters. The universal system in vogue everywhere seems to be by the use of water, washing away the offensive matter as quickly as possible; and where the traveling public will not take any pains to operate the simple machinery, a hired janitor keeps an eye on the apartment, and keeps every thing in nice order. I presume one of the most difficult points of the problem is to get a faithful *hired janitor*. I judge it is difficult, because I have heard hotel proprietors severely upbraiding the janitor because he did not keep things more

orderly and sweeter-smelling. I have also heard the sleeping-car conductors reproving the porters with terrible oaths, because the porters neglected their regular appointed work. And it is not only the public places where these things are neglected, but it is in private and humble homes as well. Dear reader, I hope you will not be offended if I ask, if it is not true that *you* have, at some time in your life at least, failed to care for these outbuildings as they ought to be cared for. As a rule, I believe our wives have done their part faithfully; and sometimes when they call attention to the matter, when urgent business is crowding, I am afraid we men-folks get a little cross and impatient. Well, in considering these things, and in considering, also, the well-known fact that the contents of these outbuildings make an excellent fertilizer for the garden, I decided on my plan while riding on the cars. The plan was, briefly, this: I would have this necessary outbuilding made much as it is now; but instead of being *under* ground I would have it *on top* of the ground, and have it raised up high enough so that, by opening a door on the back side, or such side as is most cut off from view, an all-metal wheelbarrow, such as we picture below, can be pushed under so that the metal box would come in the right position to be loaded up automatically.



ALL-METAL WHEELBARROW.

Of course, a good layer of dry dust is to be placed on the barrow, and a barrel or box full in a convenient place, and each member of the family carefully instructed in regard to the use of this dry dust. When the wheelbarrow is sufficiently full it is simply pulled out and run out to the garden, and the contents spaded into the plat of ground that needs enriching. If the good man of the household is an enthusiastic gardener or fruit-grower, no doubt the plan would work nicely. The wheelbarrow, as you will notice, is all metal. There is not a particle of wood about it. If it should get soiled, however, or if wanted for other purposes, it can be quickly cleansed with boiling water. One objection to the plan is the expense of such

a wheelbarrow. It is, I believe, about \$7.00. Another is, it is such a splendid implement to have around for a hundred different purposes, that it could not well be spared for my sanitary arrangement. You might say, then, that two wheelbarrows should be procured, keeping one for this express purpose. But even \$7.00 would be pretty expensive for a good many of us—or, rather, the interest on \$7.00, year after year. Another objection to the dry-dust arrangement (and this is the one my wife emphasized) is, that the children will manage to raise a cloud of dust, be they never so well taught. Then the out-building must be *dusted* as well as *washed*, or, first you know, your Sunday clothing will show dust-marks. Dust is easily brushed off, it is true; but it takes time to go after the clothes-brush, and then put it away exactly where you found it. Besides, you might not notice the dust, and therefore unconsciously appear among respectable people with more “dust of the earth” visible on your outer person than is desirable. And that reminds me of my text at the head of this chapter. We are made of dust, and to dust we must return; and in regard to disposing of the contents of our closets and outbuildings, I am firmly persuaded that the only right plan is to restore this troublesome accumulation right back to mother earth, whence it came. It came from the dust of the earth, and it must ultimately go back there.

I wonder if it occurred to any of you while reading Chapter V., about “The Waters Led Captive,” that friend Cole was, whether he knew it or not, opening up an avenue (I guess avenue is the word, is it not?) for the disposal, not only of the sewage and soapsuds from our kitchens and laundries, but also for the disposal of the contents of these outbuildings of which I have been talking. After I had studied the matter over a little it came into my mind that we had arrived to at least one happy solution of a great part of these troubles, and I wrote to him about it. Here is his reply:

HOME ON THE HILLSIDE,  
Wellsville, N. Y., Dec. 5, 1885.

Friend Root:—

As regards the privy-vault, my own methods tell the story. At the termination of my reservoir trenches above my house, are three successive wells, at different levels, with overflows. These are severally five, six, and eight feet deep, filled with round stone up to the overflow, and as perfectly shingled, sodded, capped, and sealed with clay, with surface soil finishing up, as can be well conceived. The water falls into the first, and passes through filters in succession, till from the last, near the bottom, there issues from a pipe an inch stream

of water, as fine as the best in the world, a *flowing well*, which supplies the household, and waters all of our horses, cows, etc. (not a large number, but of sufficient intelligence to refuse to drink from any other fountain). The bore of the pipe being only an inch, the water rises in the well and overflows, running down, passing in constant stream through our privy-vault, and liquidating the solids; the stream moves on into a deep trench across the garden, from which, overflowing through filters, and flowing through surface and percolating through subsoil, my spring brook is reached, the water being perfectly clarified.

Next spring I begin work to drop all surface washings about the barns, sty, hen-house, etc., into trenches, saving all liquids and solids operating as food for plants, and filtering and completely purifying all waters. The rains, dews, and snows are all run through the soil, nor are any at all seen upon the surface; and to this complexion will it come at last, when ushered in shall be the new heaven and the new earth, with their good time coming. I shall see only its advent here, but shall go where it has been already realized, and I am content. Hoping to meet you there, if not here, I am very truly your friend,

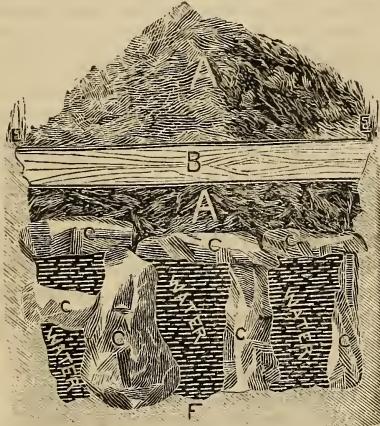
A. N. COLE.

You will notice that friend Cole has almost unconsciously, as it were, accepted the present condition of things, admitting that the plan followed by most of our institutions is the most feasible plan; viz., using water as a means of cleansing these places. Heretofore the question has been, What shall we do with these washings, and sewage in general? I do not know exactly how large cities dispose of their sewage; but, I believe, as a rule it is run into the rivers, lakes, or ocean. The town of Pullman, in Illinois, has set an example by utilizing the sewage of that city for raising vegetables; but I do not know how it is distributed among the growing plants—probably by a system of pipes under ground. If any of our readers can give me any more information in regard to the matter, I shall be very glad of it.

I will now tell you what we have already done in this matter at the Home of the Honey-Bees. In accordance with friend Cole's instructions I have dug a system of underground reservoirs. We did it during the mild weather in the latter part of December and first of January. The engraving on the next page will make it plain to you how we constructed them.

Perhaps I should preface my explanation by saying that stone is so scarce on our ground we are obliged to purchase broken fragments from the quarries at \$2.00 a carload, as I have mentioned before. Well, although the stone costs only \$2.00, the freight on the carload was \$9.00, making in all, perhaps, a dollar for a good two-horse wagon-load of broken stone. Now, as the purpose

of our reservoirs was to get as much room for water as possible, at the same time using as little stone as possible, we placed them as figured in the cut, so as to make interstices, or water-passages. C, C, represent the stones; A, the earth; B, a board put in temporarily to keep the bank from caving into the last-made pit. In practice we use two such boards, 14 or 15 inches wide. The ends are let into the bank so that they will keep the dirt from caving in when the dirt is thrown in on the front; when they are no longer needed they are pried out with a pick, and moved along to the next excavation. F is the solid earth before being dug.



AN UNDERGROUND RESERVOIR, CONSTRUCTED FOR THE "NEW AGRICULTURE."

In accordance with friend Cole's instructions, I made my first two reservoirs, along the highest part of our garden, between five and six feet deep, and six feet in width. The main reservoir is about 150 feet long; but as the ground is not quite level, in order to get the bottom to a water-level we dug down six feet on the highest ground, and about four feet on the lowest. To avoid handling this great amount of earth more than once, we proceeded as follows: We made a wooden frame six feet wide and eight feet long. This frame was laid on the ground at the place of starting, and then with a spade we cut all around it. The frame was then moved away, and the earth dug out with spade and shovel and pick, and thrown on three sides of the excavation. After it was all dug out, stone were placed in, as shown in the cut, to the depth of  $2\frac{1}{2}$  feet. On top of the stone we threw tin scrap from our tin-shops, broken glass and crockery—any sort of rubbish we wanted to dispose of, to be found anywhere on the premises. Old tinware was also used to take the place of

the stone; old stove-pipes and sheet iron—any thing that was lumbering up the premises, being sure to place it so the weight of the earth above would never crush it down into the water. After the tin scrap, etc., we put on scraps of leather, old boots and shoes; lastly, coarse manure for two or three inches. Now, instead of throwing the earth back into this pit from the sides, we took the outline frame used before, and made another excavation south of the first one, the dirt being thrown from the first to the north end and on the east and west sides. Perhaps I should explain, that our ground has ordinarily from six inches to a foot of vegetable mold on top. Underneath this is a subsoil of yellow clay. I was inclined to think that this yellow clay should be carried away; but friend Cole says not. Now, let A represent the bank of earth on the north side. The one foot of vegetable mold, or good dark-colored soil, was spaded out; but instead of throwing it out on the stone covering, we pitched it on A. When it was all off so as to leave nothing but yellow earth in the second pit, this yellow earth was pitched on to the manure covering the stones, throwing first a few inches of yellow earth, and then a few inches of manure, so that the contents of the pit above the stone was manure and this yellow subsoil, about half and half. Loads of manure had been previously piled on each side of the path of this reservoir. You will observe that the trench was carried along in this manner, putting the good soil on top of the banked earth at A.

Well, after this reservoir had been carried about 75 feet southward, it passed close beside one of the outbuildings belonging to the factory; but the covered reservoir was at such depth in the ground that the top of the stones was still a little lower than the bottom of the vault of this outbuilding; so you will see all that was needed was to make an inclined plane under the outbuilding so as to permit the contents to be easily washed by the water into the reservoir. When this was done, the garden soil was nicely banked all around this outbuilding, making it warm enough so a zero freeze would not at all affect the contents. Who has not been annoyed during zero weather by a freezing-up of the contents of these outbuildings? Perhaps I should here state, that during a very severe shower of rain, or when the snows melt in the winter, we have a flood of water coming on the west side of our garden. I have laid underdrains with large-sized tile

repeatedly, but still quite a freshet sends a little flood down among our honey-plants and flowers. Well, before finishing up the piece of work I have been describing, we constructed open ditches on the west side of the garden, to connect with large-sized tile so as to empty all the water, from the west, under this outbuilding, so you see the effect of a rain will be to wash the contents into my large underground reservoir, where the roots of our plants and trees can help themselves. If you look at friend Cole's letter you will notice that in the last paragraph he suggests an arrangement whereby our poultry-houses, pig-sties, and even stables, may be so arranged as to allow the contents to either drop directly into one of these reservoirs, or so they can be washed in with very little pains. Liquid manure and all, is thus quickly and almost automatically sent to the fields to fertilize growing plants. Instead of laborious carting and teaming, and then more laborious plowing and harrowing to get these substances into the soil, the rains are taught to do this disagreeable and laborious work. May be you will think friend Cole and I are borrowing from our imagination somewhat; but I think every candid reasoner will allow that friend Cole has accomplished a great deal, any way, even if it should transpire that *all* he proposes to do may not be secured.

In connection with this matter of out-buildings, there is another thing I want to be excused for calling attention to. Many such buildings are so arranged, or made so loose with joints and cracks above and below, that in the winter time there is great danger of delicate people, women and children, taking cold by cold drafts and exposure. When it is nicely banked up as I have described, and made close and tight, no cold air can gain access anywhere, so as to make a draft dangerous to the health. Furthermore, if close-fitting lids are provided, and kept closed when not in use, no un-

pleasant or unhealthful odors can escape; and as it is all a dark cellar below, even a child would meet with no repulsive sight if the little one should happen to look into the dark depths. From motives of economy and durability I would by all means have the foundation of brick or stone; then bank it up and plant grapevines or other choice fruit around it. A Niagara grapevine is growing near the one belonging to our home.

After we get to the end of our underground reservoir we shall have one pit containing no earth, and there is none to put into it. But the dirt from the first pit lies where it was thrown out. This may be carted so as to fill up the last one, or you can spread it over the surface and fill the last with dirt taken from the surrounding soil. We meet the same thing in ordinary trenching for market gardening. Of course, where we put in as much manure as I have mentioned, the heap of dirt at A will be raised up much above the general level of the ground. I propose to let this lie until the frosts of winter work it up fine for use, and this morning, Jan. 12, the thermometer is 6 degrees below zero, so you see I am going to make this severe weather serve me. Our potatoes and apples are safe from the effects of the frost, in that new outdoor cellar I have mentioned a few pages back. Our poultry and bees and other stock have comfortable accommodations; we have a large factory at least tolerably warm by steam-pipes this brisk morning, so we can go on with our work in spite of the frost.

Of course, I do not know what we shall be able to raise over those reservoirs, and on the ground between them. We have placed them from 20 to 30 feet apart. We shall, as soon as spring opens, test them with strawberries, raspberries, celery, cabbages, etc., and we think it quite likely we shall be able to get splendid crops on a soil heavily manured for *two feet* or more in depth, with a reservoir of water underneath it all.

## CHAPTER VIII.

Whatsoever thy hand findeth to do, do it with thy might.—Ecc. 9:10.

Now, friends, if you will pardon the digression which the advent of friend Cole's book has made necessary in our new book, we shall go on with "What to Do, and How to Be Happy while Doing It." The digression will, however, I hope, furnish many of you something to do; and if you are as hap-

py while doing it as I have been during the past three or four weeks, I think the chapters which it occupies are right in place in our book. A good deal that I tell you how to do here I suppose will be done when you would not otherwise do much of any thing else. In fact, this book is written particu-

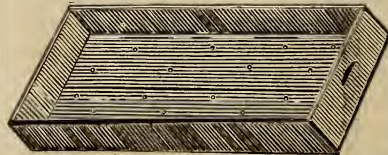
larly for people who have spare hours, and times when they have not much to do.

Some of the things I describe cost considerable money, I know; but I do not intend to recommend things that will not ultimately save money in the end, or save health, which is more than money. It is now toward the middle of January, and the weather is such that many of you doubtless think ordinarily there is not much to be done outdoors. However, we should try to improve all weather suitable for outdoor work; and when you can not work outdoors, let us work inside. As a general thing, I believe it pays to have one or more thermometers about your premises. By watching the thermometers you can tell how the weather is turning, and make your plans accordingly. A thermometer is also needed in the cellar, to tell when your fruit and vegetables are at the proper temperature. By opening the doors and windows you can keep many things about as safely as they are kept in the cold-storage rooms; that is, keep them just as near freezing as you can, and not have them freeze. Apples will frequently begin to rot badly during mild spells in the winter, where, by the simple use of a thermometer, and keeping the matter in mind so as to close the doors and windows, a cellar full of apples might have been kept entirely free from rot. Friend Terry takes advantage of this in keeping his seed potatoes so they will neither rot nor sprout. Suppose you decide by the thermometer that it is too cold, or the roads are too bad, or that there is nothing outdoors that can be done profitably; or may be it is after dark during these short winter days that you have unoccupied time on your hands—what shall we do? We will do this: Learn how to make seeds grow. Have you ever tried making things grow? Very likely you have. May be you are one of these people who can make every thing grow that you get your hands on. The chances are against it, however, because there are not many such people. You can learn how to do it, however, just as surely as you can learn the multiplication-table.

#### MAKING THINGS GROW.

If you haven't good seed, the first thing is to get some. If you have seeds of lettuce that have produced just such heads as you wanted in former years, use that. If you haven't, get a five-cent paper of one kind, or have different kinds, if you think proper. Last season I had *nineteen kinds of lettuce* growing in one bed, and the experiment

was worth to me certainly all it cost. There is one advantage in commencing with seeds in the middle of January, because you can have them nicely tested indoors before it is time to work in the open air. May be you have only a window, or two or three windows, in which to raise plants. If you have a little greenhouse, cold frame, or hotbed, all the better; or if you have not these latter appliances, you can start the seeds before the window now, and get some sash and make preparations for them while they are getting larger. Whatever you do, economize your space and make use of every bit of sunshine. If you learn to use economy in managing a square yard of sunshine, you will be prepared to use economy when you get outdoors on an eighth of an acre, a whole acre, or many acres. It seems to me every farmer will be a better farmer for having at some time in his life had practice with a single square yard of earth, and tried to see how much he could make that yard produce. The first thing needed is boxes to hold your earth. I would have these boxes uniform, and all just alike, even if it does cost some time and trouble. Here is a picture of one of them.



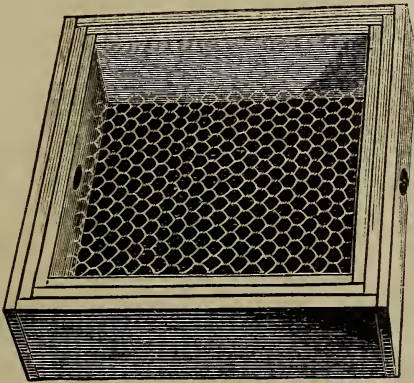
A BOX FOR RAISING PLANTS TO SET BEFORE THE WINDOW.

To have them light to handle I would have them made of  $\frac{3}{4}$  pine, except the ends, which are made  $\frac{1}{2}$ . The bottom is made of two pieces—not necessarily, but they are better so, because then each piece can be nailed into the side-boards, making the box strong, even though the bottom is all thin stuff. For drainage, the two pieces that form the bottom should be, say,  $\frac{1}{4}$  inch apart. Then I would have a dozen  $\frac{3}{4}$  holes bored as shown in the cut. The box is  $3\frac{1}{2}$  feet long, 15 inches wide, and  $4\frac{1}{2}$  inches deep, outside measurements. Should you make a little greenhouse or cold frame, these boxes will be just right to set on the benches; or if you have the benches filled with earth,  $3\frac{1}{2}$  feet is about as far as you can reach over while standing in the path. More of this anon.

#### SOIL TO PUT IN THE BOXES.

Much depends upon this, and the basis of it should be good well-rotted stable manure. I would rather have this than bone dust,

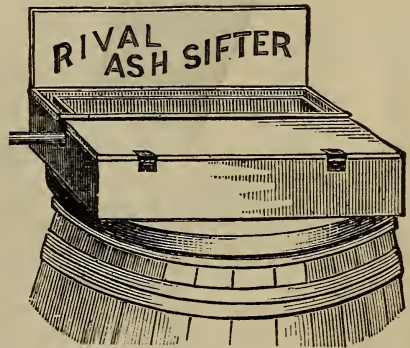
guano, phosphate, or any other fertilizer. The best thing to mix with the stable manure I know of is rotted sods, but you can not always get these handy. Perhaps the best you can do will be to get some soil from the richest part of your garden. If your manure and garden soil are both frozen up it will give you an appetite to dig out enough to fill a box or two so as to get things started. You can thaw them out near the fire, or perhaps in the cellar. If you can get hold of some peat from a peat-swamp, you want some of that also. A heap of it in the cellar will be nice to have. You will remember how much Mr. Terry and other prominent agricultural writers have said in favor of fine tilth. If they can afford to plow and harrow *acres* so as to get it worked up fine, we can afford to take some pains with a little box full. The nicest way to get soil for plants in a fine state of subdivision, and at the same time get out all the sticks, stones, trash, etc., is to sift it. By all means, freeze it thoroughly, and then thaw it before you undertake to sift it. If you have not a good sieve suitable for the purpose, you can purchase one for about ten cents. We give a picture of three such sieves in the figure below.



SQUARE SIEVES FOR GARDENERS' USE.

Sift the stable manure if you can. If you can't, break it up into little bits. If it is old enough and rotted enough, so you can break it up and make it go through the sieve, it is just what you want; but if it is the kind that is black, and can be cut up, something like cheese (beg pardon for the illustration), it will do very well, for it will soon work up fine by use. While speaking of the sieves, I wish to say that such sieves are very handy for many purposes in the household. The ashes from your stove, if you burn wood, make an excellent fertilizer, and are to be saved very carefully. Before using them

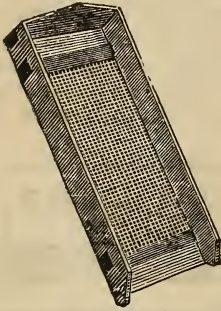
they should be sifted, and every thing that does not go through the sieve should go back into the fire. Coal ashes are sometimes treated in the same way, and the coal and coke you get out of the ashes to burn over again will well repay you for the time and trouble. Some wood ashes will be tiptop to put in your seed-bed, but you do not want more than a teacupful in a whole box of earth, and it must be very thoroughly mixed with soil by stirring it up and sifting it in. Your muck, or peat, also wants sifting; and where you have much sifting to do, soil, peat, ashes, etc., a regular ash-sifter to put over a barrel is a nice and cleanly arrangement. We give a picture of the ash-sifter below.



You will notice that this sifter sifts your material nicely in a barrel. The lids shut down so that the ashes do not fly around the room and make your wife trouble. Such a machine costs about \$1.25. If your soil is a clay soil, a mixture of sand is excellent for raising most vegetables. Radishes, for instance, grow nicer in sand or gravel, properly enriched, than almost any thing else. While speaking of sand I want to say that a sand-sieve is a splendid thing for sifting soil, peat, etc., especially where you have enough to do to take it outdoors. We use one such as is shown in the cut on next page.

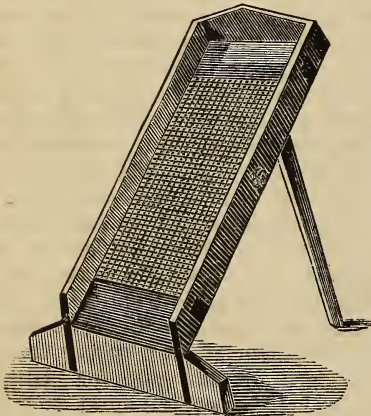
They are also nice for sifting gravel for making gravel walks; also for sifting coal. One end is to be propped up at such an angle that, when you shovel the dirt, sand, or gravel, against the upper end, it slides down of itself. An economical way to use such a machine is to have two wheelbarrows side by side. Stand the screen so it rests in one wheelbarrow, sloping over the other. Pitch your mellow soil against the top end; the fine dirt goes through into the wheelbarrow below, while the coarse particles run down into the other wheelbarrow; then wheel the contents of each where you want

it. Such a screen, or sieve, made of galvanized iron wire, so it can not rust, costs \$5.00. It is 2 feet wide by 5½ feet long. They are used by masons, coal-dealers, and for many other purposes. If you live near a large city, you can often get the sweepings from the pavements, which Peter Henderson considers worth as much as barnyard manure. Run it through the sieve as above, and it is ready for business. Below is a cut of this last sifter.



SCREEN FOR COAL, SAND, ASHES, OR GARDEN SOIL.

Where you are going over a still larger extent of ground, and wish to get out sticks, stones, hard lumps, etc., but don't care about being so very particular, a still coarser screen is sometimes handy—such a one as dealers in coal use largely. A very handy one is shown below, with a foot-board and leg.



COAL-SCREEN, TO BE USED FOR GARDENING PURPOSES.

This last machine is the one we shall use for preparing the soil over our covered reservoirs, described in Chapter VII. We pass the surface soil through this to make it fine, and to get out all the stones and other impediments to high culture. This debris which is screened out is used for filling the overflow filters, which permit the water to flow from one reservoir to the other.

Now as we have discussed soils and sieves, let us sow our seeds. As no plan has given us such success as the one described by Peter Henderson, in his book entitled *Garden and Farm Topics*, we give it in his own words here :

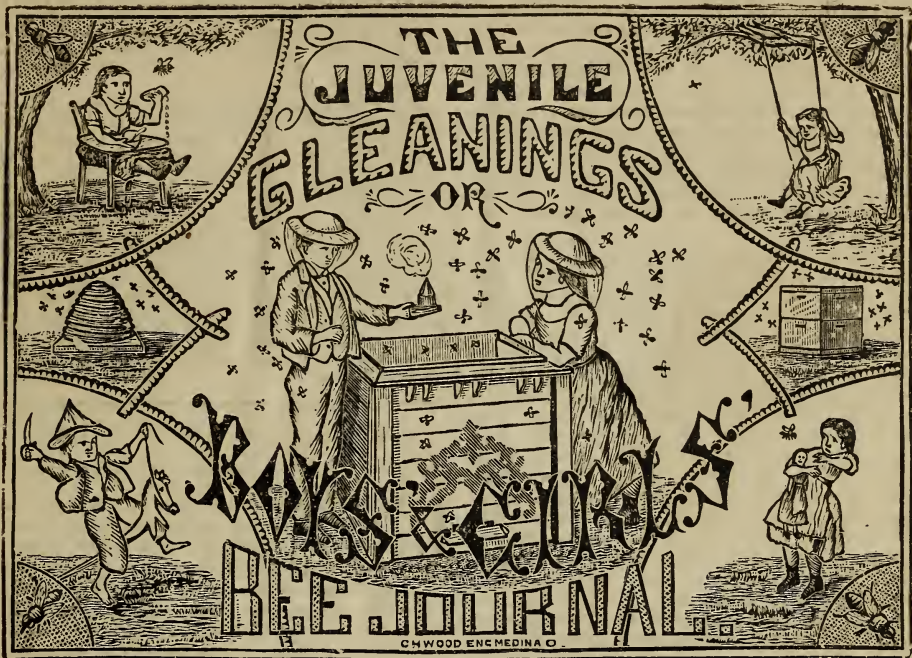
Since 1886 we have made many important improvements in culture under glass, particularly in the methods in use in starting plants of cabbage, cauliflower, and lettuce. The old plan of sowing the seeds for these plants in the open air in Sept., and pricking them off in Oct., and keeping them in cold frames, is gradually giving way to sowing in green houses or hotbeds in February, and pricking out in March, which gives a far healthier and nearly as strong a plant, by the first week in April, as those that have been wintered over. The past season we raised nearly half a million of plants in this manner, which we sold at \$5.00 per thousand, a price as profitable to us as the plants were satisfactory to the buyers. We sowed the seed the first week in February, in one of our greenhouse benches, so thick that they stood twenty plants to the square inch. These we began to thin out, to prick in hotbeds, just as the first rough leaf appeared, placing a thousand plants in a 3×6 sash.

The handling of that quantity was a big job, but I doubt if one plant in a thousand failed, owing, I think, to a plan we used in preparing the bed on the greenhouse bench for the seeds; a plan that I think well worthy of imitation in preparing a bed for seeds, that have to be transplanted, of any kind, whether outside or under glass. We used only two inches in depth of "soil" for our seed-bed, which was made up as follows: For the first layer, about an inch, we used a good friable loam, run through a half-inch sieve. This was patted down with a spade, and made perfectly level and moderately firm. On this was spread about one-fourth of an inch of sphagnum (moss from the swamps), which had been dried and run through a sieve nearly as fine as mosquito wire, so that it was of the condition of fine sawdust. On top of the moss the ordinary soil was again strewn, to a depth of about three-fourths of an inch. This being leveled, the seed were sown very thickly, and then pressed into the soil with a smooth board. On this the fine moss was again sifted, thick enough to cover the seed only. The bed was then freely watered with a fine rose, and in a week every seed that had life in it was a plant.

Now, this seems a long story to tell about what most consider a very simple operation, but it is necessary to give these details for a thorough understanding of the advantages of the method. When the seeds of most plants germinate, where they are thickly sown, the stem strikes down into the soil, the roots forming a tap-root with few fibers, unless arrested by something. Here comes the value of our one-fourth of an inch of sifted moss, placed three-quarters of an inch from the top. As soon as the rootlets touch the moss they ramify in all directions, so that when a bunch of seedlings is lifted up and pulled apart, there is a mass of rootlets, to which the moss, less or more, adheres, attached to each. To the practical gardener, the advantage of this is obvious: the tiny seedling has at the start a mass of rootlets ready to work, which strike into the soil at once.

The advantage of the moss covering of the seed is not so apparent, in the matter of a free germinating seed, such as cabbage, as in many others; but in many families of plants it is of the greatest value. For example, last November I took two lots of 10,000 seeds of *Centaurea candida* (one of the dusty-miller plants so much used for ribbon lines); both were sown on the same day, and exactly in the same manner, in boxes two inches deep filled with soil; but the one lot was covered with the sifted moss, and the other with fine soil. From the moss-covered lot I got over 9000 fine plants, while from that covered by soil only about 3000. The same results were shown in a large lot of seeds of the now famous climbing plant *Ampelopsis Veitchii*, and in the finer varieties of clematis. The dust from cocoa-nut fiber will answer the purpose even better than sifted moss, when it can be obtained. The reason is plain: the thin layer of sifted moss never bakes or hardens, holding just the right degree of moisture, and has less tendency to generate damp or fungus than any substance that I know of.

To be continued Feb. 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

#### MYSELF AND MY NEIGHBORS.

Thou shalt not covet . . . any thing that is thy neighbor's.—Ex. 20:17.

**T**HIS subject of our neighbors has been brought prominently to my mind this morning by contemplating the Bohemian-oat swindle. In order to bring the subject before the friends, I quote the following from the *Farm and Fireside* of Jan. 1, 1886:

Originating in northeastern Ohio, the Bohemian-oats scheme has spread like a poisonous fungus throughout this and most of the neighboring States, until it promises to permeate the length and breadth of the land. Certainly it would seem that no man of average intelligence could fail to see at a glance that somebody must eventually be a heavy loser by this scheme, even were those primarily engaged in it to fulfill their contracts; yet we have been astounded to hear mentioned in connection with it the names of men who had previously stood above reproach. This scheme has frequently been denounced as a swindle by the local press where it has appeared, but these denunciations have not prevented its reappearance in some distant quarter. Moreover, it has been quite difficult to get at the real plan upon which the scheme was being worked, and consequently the sharpers operating it, by the aid of a few stool-pigeons employed in each new neighborhood, have been able to work it over and over again. In this and the preceding issues of *Farm and Fireside* we have presented the most complete expose of this business we have yet seen. The reader who follows this expose carefully will see that the scheme is most cunningly devised to feed upon the greed of unprincipled tricksters on the one hand, and the credulity of ignorance on the other; and that unless checked it will bring upon the farmers of the country an enormous load of distress.

Even the little boys and girls, I think, can understand this matter if I try to make it plain, and perhaps many of them have heard

the matter talked over in their families already. When the agricultural papers came out and announced that these oats could be bought for 75 cents or \$1.00 a bushel, while this association was calling them worth \$5.00, and in some cases \$10.00 a bushel, it would seem that any child should understand that there was something wrong; but men who have before been considered good men, and some of them, perhaps, professors of religion, have still pushed ahead, made crazy and greedy by speculation. Some of them have even gone so far as to say, "I don't care if the oats are worth only 75 cts. or \$1.00 a bushel; so long as these men give me my \$5.00 a bushel, what does it matter?"

When anybody goes to reasoning in that way, you may be sure he is in a bad state of mind. We all of us get into bad states of mind occasionally—that is, the most of us do. Just yesterday morning Huber was cross and peevish. I reasoned with him a little, but the "cross" would not go away. He saw the force of my reasoning, and he knew he ought to be a good boy; but he told the truth, even if he was bad. In reply to my question, he said, "No! bad boy." I presume he reasoned as I often have, in regard to this element of evil that sometimes gets such firm hold of us. He did not say so, but I thought by his looks he was thinking something this way: "Papa, I know I am a bad boy; but I am trying to be good, and the good won't come. I do not know what it is that makes me bad." Pretty soon he came to the point where he might have honestly said, "I am sorry I am bad." Just

one step more, and he could think, "I want to be good." When he got to that point he was out of the filthy mire. A smile began to show itself dimly around the corners of his mouth, and finally out it came, and we had a bright good boy at the breakfast-table once more. Now, then, children, for the application: When these men get crazy for money gotten without any fair equivalent, they say, "I do not care if the oats *can* be bought for a dollar a bushel; if I can get five dollars for mine, and have a sure thing of it, I am not going to bother myself any further about it."

I will tell you, my little friends, how they get the five dollars for what is worth only one dollar. A whole neighborhood gets crazy over this new speculation, or new species of gambling, if you choose. A smooth-tongued agent manages, by hook or crook, to get a few good men among them, usually by telling them that it will not cost them anything, and arranging it so they can't possibly lose; then after awhile he slips out of it and lets the responsibility of it rest on the members of the association. Men of capital, and usually those who are posted in all the tricks of the business, slip out through loop-holes previously arranged expressly for them. Men who are comparatively poor, who have mortgages on their small farms, perhaps, and who are, may be, not quite as well posted as their neighbors, in the end have to shoulder the responsibility; in other words, they have to make up the difference between one dollar a bushel and five dollars a bushel, so the scheme is one to rob poor men, and to put the proceeds into the pockets of the richer ones. What shall we do to avoid such traps and tricks? Why, keep entirely out of them, and keep out of temptation's way; don't even *talk* with these kid-gloved, smooth-tongued speculators. Shun even the appearance of evil. If your heart is full of love for God and love for your fellow-men, especially your neighbors, there will surely be no danger of your getting into any such scheme. Remember the commandment, "Thou shalt not covet . . . any thing that is thy neighbor's."

In connection with this subject I wish the friends, young and old, would turn to the first chapter of Proverbs, and read from the 10th to the 20th verse. It would almost seem as if Solomon had the Bohemian-oat business in mind when he wrote these verses. If you know any Christians who have any thing to do with this awful piece of villainy, just ask them to read these verses.

Now, lest you think I am too severe from what I have said, I want to make two other extracts from the *Farm and Fireside*, furnished by Mr. Henry Talcott, a member of the State Board of Agriculture, and a banker, and a prominent citizen of Ashtabula County, this State. He replies to the editors as follows:

You have got hold of the elephant, exactly. We had one Henry L. Bacon to come here four years ago as the head-center of this business. I wrote up the business for our papers instantly, and tried my best to prevent our farmers from being swindled. I told Bacon, when he brought his first notes to my bank to try to get them cashed, that he ought to be put in the penitentiary at once, and, thank God, he is there now for seven years—sent from the Sum-

mit County courts in Akron. He made a big run of the business first, however. Our farmers were a set of fools over the business, and now lots of lawsuits are on hand in our courts as the result of it, and many good people are in trouble. I hope you will push this light before the farmers as fast as you can.

HENRY TALCOTT.

And this:

As a rule, the Bohemian oats will not yield over two-thirds as many pounds of grain per acre as the Norway, Russian, or Welcome oats. I know this, and do not guess at it, because I have given all these kinds a most systematic and thorough trial. The Bohemian-oat swindle has been here four years, and I have seen and know the bottom facts.

A number of lawsuits, grown out of this business, are now on our court dockets, and so far the swindlers get beaten every time under the equity provision of the common law. No man can collect pay for a Bohemian-oat note, because the giver does not get value received, and the only way they attempt to do it here is to sell the notes, before due, to a third party, who can set up the claim of innocent purchasers. Fifty cents per bushel is all our courts have yet allowed as the value of the oats.

Ashtabula, O.

HENRY TALCOTT.

## LETTER FROM MRS. HARRISON.

SOMETHING ABOUT THE DETROIT CONVENTION.

**C**HILDREN:—I didn't see any of you at the convention at Detroit. Would you like to know who was there? I know you would, because I'm a child myself, only a little bit old. First and foremost was father Langstroth, came in hand, his face beaming with happiness and good will to all. He said he had not made any money out of his invention; but whenever he met a bee-keeper he was warmly grasped by the hand, which was worth more to him than money. He told a friend, that whenever he needed any thing he told the *Father* about it, and he sent it. Father Langstroth used to preach; but he got sick, and could not do it any more, and he told his wife, "If I could only invent a hive, so that every poor family could have honey all the time, I should be happy," and so he is happy; and not only happy, but beloved, and first in the affections of bee-keepers. Strong men shed tears as they watched him leave the room to take the cars for his home at Oxford, Ohio.

Mr. Root, the president of the convention, married a daughter of Mr. Quinby. Now, I always feel as though Mr. Langstroth were the father, and Mr. Quinby the father-in-law of bee culture. If I tell you a secret about Mr. Root you won't tell, will you? He gets lots and lots of honey from his bees, and won't tell how he does it. Never mind; we'll find out ourselves, and we'll feel so good over it. When I went to school I never liked to have any one do a hard example for me; for if I did it alone I could snap my fingers and cry out, "I've got it! hurrah!" You have all heard of Mr. Jones, of Canada, haven't you? He went to Italy, Cyprus, and Palestine, after bees, and raised queens on islands a long way from shore. He is a good talker, and, Englishman like, he brags a dood deal; but nobody cared until he had the impudence to start a bee-journal in the queen's domain, just as if the United States could not furnish enough for all North America and the rest of the world besides.

The second day of the convention was Mr. Root's birthday (Uncle Amos). You all like presents on your birthday, don't you? Mr. Root got one—a nice book. He was surprised. Some thought, that because a woman was on the committee she would tell; but she didn't, and so he hadn't any speech

ready, and could only say, "God bless you, my friends; God bless you."

Professor Cook was feeling first rate—was in the best of humor. He looks as if he lived on apples, pears, peaches, strawberries and cream, with oatmeal and graham bread, and never tasted of pon-horse, pigs' feet, sausage, head-cheese, and mince pies. I tell you, it makes a pile of difference what a man is made of.

I could talk to you by the hour of what I saw at the convention, but I am afraid of the editor's gavel, "Out of order!" MRS. L. HARRISON.

Peoria, Ill.

Now, my good friend Mrs. H., I am going to add to the list of people who were there. In the first place, you were there yourself, and it always does me good to see your genial face when I get to any of the bee-conventions. Miss Lettie Wilkins was also there, and quite a goodly number of ladies whose names I have forgotten. And now you have told about what *we* did, I am going to tell the children that, when I had to leave to take the train, you said you wanted to throw your old shoes after me for good luck, and I remembered it too. You say that President Root wouldn't tell how he got such lots and lots of honey. Perhaps the reason why is because he has already told it in his excellent book, Quinby's New Bee-Keeping, and he does not want to be telling it over and over.

#### GOOD REPORT FROM A JUVENILE.

ALSO A KIND WORD FOR OUR FRIEND OLIVER FOSTER.

I WILL send our report for 1885. My brother Herbert started in the spring with a stand of hybrids. He bought a nucleus (one pound of bees), with tested queen, of Oliver Foster (and he is a square man to deal with). We got it May 21. In all my brother obtained 205 lbs. of comb honey, of which 70 lbs. came from the nucleus, besides moving the nucleus when they were strong in bees, and letting the field-bees go to make another swarm. He sold all his honey at from 15 to 17½ cts. per lb., giving him \$31.50 for his honey. Herbert has now 3 stands, strong in bees and honey. The rest of us had 3 stands in the spring, and increased to 8. We bought two more nuclei of friend Foster, after July 15. They did well, and mine made 20 lbs. of surplus in sections, besides being full below. All together we sold 535 lbs. of comb honey, selling the most of it for 15 cts. per lb. We have 13 hives in all. They are packed for winter on their summer stands, with plenty of honey in the hives, and about 200 lbs. in frames, to feed in the spring. We have the A B C book, and could not get along without GLEANINGS. We keep our bees mostly in the Kretschmer Simplicity hive. FLORENCE GREEN.

Emerson, Iowa, Jan. 5, 1886.

Friend Florence, your report is a real good one. And so a nucleus, bought after July 15, gave you 20 lbs. of comb honey. did it? Now, this 20 lbs. of comb honey probably paid the cost of the nucleus, and you have the bees and stores left. If we could all do as well as that, bee culture would be fun, wouldn't it? We are glad, also, to know that friend Foster succeeds so well in pleasing all his customers.

#### CHARLIE'S EXPERIENCE WITH BEES.

WHY DO BEES RUSH TO THE FIELDS WHEN FED IN THE HIVE?

MR. ROOT:—This winter has been a mild one so far. The thermometer has ranged between 35° and 40° nearly every day, and many nights it has not got down to freezing. The bees have had several flights during December, and they also flew on New Year's day. The way we prepared our bees for winter was to fill the upper story of the hive with soft dry oat chaff thrown in loosely. Most of our swarms gathered enough honey to winter on, but some of them had to be fed in the fall. To avoid robbers we fed at night. If we fed them before it was really dark, sometimes one of the swarms that we fed would rush out in great clouds, roar about through the air, come into the house, and some of them in their excitement would go out to the buckwheat flowers, although it would be nearly dark. They were very cross at these times. They would return at dark, and in the morning would be as peaceful and quiet as if nothing of the kind had happened. While doing this, not a bee would be moving about the other hives, so it could not be robbing. I think that a bee may have stolen a load from the vessel containing syrup when it was sometimes set out to cool, for often I saw a robber at the syrup. When he emptied his load and again started forth, part of the swarm followed him. Do you think this was the cause of it? From this we took warning not to put syrup within the robbers' reach any more. We also fed some in December when the days were warm enough for the bees to fly.

MOVING A WEAK COLONY THAT HAS BEEN ROBBING, A COUPLE OF MILES AWAY.

Last spring we had a box hive that got so weak that only a small handful of bees remained, and they could scarcely be seen at all, away back among the combs. The robbers bothered it so that we at last moved it a couple of miles away. This was during locust bloom, and before basswood blossomed it had built up to a heavy swarm. We had another swarm a little larger than this one that built up and cast two swarms.

THE ADVANCE GUARD THAT PRECEDES THE SWARM; PUTTING A LARGE SWARM INTO A SMALL HIVE.

In swarming time last summer a runaway swarm came past me, in which I noticed that a little band of bees were going along in advance, followed by the main body. In 1884 we put a large swarm into a hive that was too small for it. It absconded; and while attempting to get them into another hive the queen must have accidentally got killed, for the swarm attempted to return to the hive that they absconded from, and were nearly all killed, because they got into another hive near by containing bees. They rushed through the hive and into the air with sad, wailing sounds, clearly indicating trouble and distress, and that trouble was undoubtedly the loss of their queen.

A CAUTION IN REGARD TO JARRING HIVES UNNECESSARILY.

Will bees consume honey wastefully when jarred? In the fall, one of our swarms was jarred so that it tore open some of its honey, and filled themselves with it, and every time for some time after that, that I looked into them (although I would not jar them at all), they would seem excited, and would

dive into the cells. When disturbed some of the bees make quick, sharp sounds which I can hear by pressing my ear to the side of the hive. On warm days this is kept up all day, and on cold ones for a few minutes only. They also make this sound while at work on a feeder. Will the slight jarring that *will* sometimes be made cause them to wastefully eat honey? and are they any more liable to do so in winter than in summer? Are hybrids any more apt to do it than Italians?

CHARLIE L. GREENFIELD, age 14.  
Somerville, Ohio, Jan. 2, 1888.

Friend Charlie, you have given us some most valuable facts. You have also called attention to the other strange phenomenon connected with bees. We have placed to your credit on our ledger one dollar, and we hope you will be able to give us more such items from actual experience. Your letter plainly indicates that you have been among the bees, and that you are a thinking boy. In regard to the bees starting out for the buckwheat when you fed them, I have noticed the same thing. They had doubtless been at work on the buckwheat in the fore part of the day; and as they had scoured the country in the afternoon, they knew pretty well that the buckwheat was the only source of honey; so when their comrades came in laden from the feeders, they concluded, according to the best bee-sense they possessed, that the buckwheat must have taken a sudden freak of yielding honey at dusk instead of dawn, so off they put for the buckwheat field. You see, they jumped at conclusions just as boys and girls do sometimes. In the A B C book I have mentioned feeding a colony one evening that had been getting honey during the day time out of the honey-house, because somebody had left the door open. Well, as soon as a few bees got loaded up from my feeder, and walked leisurely into the hive, a regular stampede occurred. The bees just poured out of that hive, flew in my face, and buzzed past me and put for that honey-house door. They thought somebody had left the door open again; at least they could not think of any other place from which their comrades had obtained such loads in so short a time. Now, there is a valuable point indicated here. Bees understand each other a great deal as we do, only they do not have a language as we do. Had their comrades been able to tell them, "Hurrah, boys! the boss has just put a saucerful of feed right on the alighting-board for us," the bees in the hive would have tumbled pell-mell to see who would get to the saucer first. But you see they did not tell them any thing. They only came in with great loads, and made haste to dump it into the cells. Perhaps they buzzed their wings and wiggled their bodies as they do when the honey first comes from the dandelions and apple-bloom.—A great many times the best thing to do with a hive that has been almost used up by robbers is to carry it a couple of miles away.

What you saw in front of that swarm was what the bee-books have termed the "advance guard" that leads the swarm to the particular tree selected by this same scouting party.—Bees will consume honey wastefully, I think, when they are stirred up dur-

ing a dearth of honey, or when the weather is too cold. They are more liable to do it in winter; and cross hybrids, or cross bees of any race, are more liable to do it than pure Italians or gentle bees.

## HOW OLIVER FOSTER PUTS UP AND SHIPS HIS BEES.

THE CALITHUMPIAN BEES.

**B**ACK a few numbers of GLEANINGS you said that you would like to have a report of the way in which Mr. Oliver Foster puts up his bees to make such successful shipments.

Pa got 1¼ lbs. of bees, a comb of brood, and a tested queen from Mr. Foster last May. They were in a light case 4 inches wide, and deep and long enough to hold a Simplicity frame, a wire nail driven down through the ends of the frame and into the case, the nail sticking up just far enough to get the claws of the hammer under to pull it out easily; then a piece of old tough brood comb was wedged between the comb and case to hold all steady; a wire cloth was tacked over the top, two screws in each side of case, and wire fastened to them, and passing over the top for a handle.

They came through (800 miles) in splendid condition. They were three days and four nights in the case. We took them out of the case and got them in the hive in short order, and in a few minutes they were carrying in pollen from fruit-bloom for all they were worth. Pa said they just took the oath of allegiance, and went right to work like good and loyal subjects of "Her Majesty."

I have something funny to tell you about No. 16, the hive with the Foster queen. Bennie A—, a boy 14 years old, who had never seen Italians, was standing in front of the hive watching the bees, when he asked, "Are these Calithumpian bees?" You see he could not think of "Italians," so he did the best he could. Such a laugh as we all had, and pa laughed until he almost cried. Of course, you know what we call Calithumpian. Those fellows who parade in the processions on the 24th of May and other holidays, dressed in ridiculous costumes and masks. We have dubbed that hive the Calithumpian, ever since. It is too bad, too, to give them such a funny name, for they have done well this summer, and pa says that is one of the best queens he has. Our bees are nearly all in sawdust hives, with sawdust cushions in the section-case on top.

I have a brother, Roy, 8 years old, and a sister, Ruby, 5 years. We are all interested in the bees. Isn't it a funny little fellow, who knows every thing just as soon as he is born, as a bee does?

Now, Mr. Root, I have tried to write this just as the printers want it, on one side of the paper, and all that. You see my pa writes for the county paper. If you think it would do for GLEANINGS, I will write and tell how we made an aquarium, with a pretty fountain in the middle, for our dining-room.

SPERRY DUNN.

Ridgeway, Ont., Can.

Very good, Sperry; but we wanted to know how Mr. Foster puts up bees without any brood or combs. The package you got was a one-frame nucleus, which is all right, but it takes a comb of brood and honey out of the hives every time he sells a pound of bees.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: *Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room.* We have also *Our Homes, Part I, and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;  
An' th' faith, he'll prent it."

IS it not a little strange why young birds should leave their cosy nests? why bees swarm, and why grown-up young folks should abscond and leave the old house with its fond recollections? Yet it is not so *very* strange after all: at any rate that first swarm from the "Root Bee-Hive" thinks so! Yes, they have recently been visiting New York — the great metropolis where the busy hum of busy life prevails. As the parent stock has said, it seems a wonder that some one does not get run over. Amid such a hum-drum, rattle and roar, ears are no surety against impending danger, and when crossing the street you have to look several ways at once, if that be possible, or you may get knocked down by a cart-wheel or a horse tugging at a street-car. The streets of Cleveland, Detroit, and Chicago, where there are no elevated railways, bear little comparison to those of New York, in the amount of noise and seeming confusion.

We visited many different places which you may have read of, or, possibly, have seen, such as the Brooklyn Bridge, from whose height we see in the distance Hell Gate, of which we have read so much of late; Central Park, a wonder in itself, occupying a vast domain of rocky land in the heart of the city; a Japanese village, modeled after those seen in the native country, and where all the various arts are represented; the Eden Musee and many other places, to say nothing of the various streets which are celebrated in themselves.

As these things are all quite familiar, or have been fully described in some of our best magazines, suppose, little folks, we take a boat-ride in N. Y. Bay, our point of destination being Staten Island. As we start we can begin to form an idea of the size of the Bridge as seen on our left. Yonder is Governor's Island, upon which is situated an old

fort. Further on to the right as we glide along, is the pedestal upon which is to be placed the Goddess of Liberty, of which we have read so much. All along our course are tugs, yachts, and sail vessels. Here is a steamer just coming in from the ocean; there is one just going out to sea. Thus the water in the bay is a fair sample of the life seen upon the streets. Pursuing our course a little further we finally arrive at Staten Island. From this the old Commodore Vanderbilt formerly ran his ferries. On landing, after a long walk we arrived at Fort Wadsworth, at the upper end of the island, and just opposite the Narrows. From this point we see dimly the ocean, and across the Narrows two other forts—the names of which we do not know. As we look at these vast masses of earth-works like mountains, and the solid walls of masonry, with huge guns mounted here and there, as if about to sweep every thing on the water, we feel like exclaiming, "Woe unto you foreign nations that dare to invade this harbor." A little inquiry, however, reveals the fact, that these guns are of but little service now, being relics of past wars. The iron-clads of to-day would pass these forts unharmed. Nothing short of a torpedo, or a cable stretched across the Narrows, could prevent them going down. Neither would the stone walls offer any resistance to the heavy breech-loading rifled cannon. Wise men are asking the question why Uncle Sam does not build a navy and refit these forts, thus rendering ourselves more secure from invasion. I suspect Uncle Sam thinks there are other things of vastly more importance. Our resources are almost endless, and if any one can put himself in fighting trim on short notice, it's Uncle Sam. More than all, "It is not by might nor by power, but by my Spirit," saith the Lord.

Well, well! my little (?) letter is already too long and I'll have to stop short right here. Perhaps you inquire whether the "better half" was along. I reply, that said "half" was on hand, and really tired me out walking.

ERNEST.

#### BEES, HICKORYNUTS, ETC.

We are wintering three stands of bees. We have two packed in sawdust, and one in the cellar. We extracted 100 lbs. of honey last season. Last year was a good year for bees here, but there was no sale for honey. Last fall was a good year for hickorynuts. My brother and I gathered about three bushels.

ALBERT MCCURDY.

Trafalgar, Can., Dec. 27, 1885.

#### FIVE-CENTS FOR SEEING THE FIRST SWARM.

My pa has some bees, and so has my grandpa. Last summer we little ones had to watch them at swarming time; the one who saw the first swarm come out got five cents. I go to day-school, and to Sunday-school. I had a nice piece to speak the evening before Christmas.

FREDDIE A. LAROSH, age 8.

Pekin, Ill., Dec. 27, 1885.

#### FROM 6 TO 12, AND 465 LBS. OF HONEY.

Pa took the first premium on Italians and black bees, and extracted honey, and second on rabbits, at our county fair. We made a fish-pond this fall, and have now made applications to the U. S. Fish

Commissioner for carp. Pa wants to know if the fish that he gets this winter will spawn next summer. We took 465 lbs. of honey last summer from 6 colonies, spring count, and increased to 12 and sold three.

JAMES SHENEMAN.

Pharisburg, Ohio.

No, James, the fish the Commissioner sent you this fall will not spawn next season unless they send out larger ones than any I have seen coming from the various State hatcheries.

ANOTHER BEE LIVED 19 HOURS AFTER STINGING.

I let a bee sting me at 1:30 o'clock p. m. Wednesday, and he died at 8:30 A. M. Thursday. He lived 19 hours. Our bees are wintering nicely. I have 4 of my own. I hived our bees last summer. My brother got 3000 lbs. of honey this year. He has 100 swarms. He ventilates the cellar by a stove-pipe from the sitting-room stove, and an opening in the cellar wall, to let the air from outdoors come into the cellar.

HERBERT HUTCHINS, age 13.

Massena, N. Y., Jan. 1, 1885.

STINGING LIZARDS.

I am a boy 14 years old, and I like bees. We have 14 hives. We had them Italianized last spring, and lost only 2 queens out of the 14. Isn't that pretty well for beginners? There are a good many bees around here. Bee-stings do not hurt me. We have sheep and I like them too. There are lots of "stinging lizards" here. The winter is very late here. Some of the trees have leaves on them yet. There are a great many wild flowers in this country, and "bucking ponies" too.

EUGENE FOWLER.

Davilla, Texas, Dec. 8, 1885.

SAMMIE TELLS HOW THE BEES CLUSTERED UPON THE GROUND.

My papa keeps 23 hives. He commenced with one swarm. I will tell you what a time my papa had to save them. One bright sunny day last spring the bees came out to take a fly. They flew all around the yard, and when my ma went out in the evening to feed the chickens, she happened to see that the bees that were having such a nice fly were all lying on the ground. So my ma took a large crock and picked them all up and brought them by the stove, and they soon commenced to fly. It was then about five o'clock, and a little later the bees were all on the window. So my ma then sent to have papa come home and see to them. My papa brought the hive in the kitchen, thinking the bees would go in; but instead of that, those that were in the hive came out on the window with the rest, so pa moved the hive up to the window and made some syrup of sugar, and filled some comb and laid it near the entrance, and then lighted the lantern and set it next to the comb, and the next morning when we got up the bees had all gone back into the hive.

SAMMIE SEITZ.

Clarence, N. Y., Dec. 7, 1885.

Sammy, my impression is, from your description, that those bees were out of stores, and they came out on the ground because they were starved. I suppose you fed them enough to prevent any such mishap occurring again.

TWO HIVES KNOCKED OVER BY A BLIND HORSE.

My pa takes GLEANINGS, and thinks it is a most excellent paper, and I am taking quite an interest in reading the children's letters. I have finally been

seized with the idea that I should like to try and write you a letter myself, but I suppose there is nothing that I can tell you about bees which you do not know already, except it be some little incidents that have fallen under my observation. There is a small boy living here. His father and mother are dead, and he has no other home, so pa and ma have given him a home with us. His name is Roy. When he first came here he did not know much about bees. Pa told him he must keep away from them or they would sting; but he did not seem to believe that those little flies could hurt him very much. So one day when he thought no one was seeing him, he went up to a hive, stuck his bare toes right into the entrance, and you may be sure that it did not take the bees very long to convince him that he had better keep away. One day this fall pa let the horses into the orchard to feed down the grass among the trees. One horse being blind, he wandered down among the hives and got stung. He then started to run; but not being able to see where he was going, he ran "kersmash" against a hive of bees, and sent it tumbling two or three times over. He turned short about, and ran right against another hive, and upset that also. No great damage was done. Through all this excitement pa got but one sting, and that was by a bee which was tangled in the horse's mane, where he took hold to lead him away. Pa takes four bee-papers and a number of other papers. I take the *Youth's Companion*.

LILLIE BULL, age 13.

Seymour, Wis., Dec. 31, 1885.

Thank you, little friend. I can imagine the scene that ensued. Your father certainly did well to have only sting; but, how about the old horse? The number of accidents we have had of this kind, ought to warn us to be careful about allowing horses a chance to gain access to the apiary.

ERNEST.

Lillie, there is a *big* moral to your little story. Never let a blind horse loose where it is possible for him to get at bee-hives. First, because the poor horse is made to suffer, possibly; second, we have no right to make the poor bees suffer, as they do when their hives are turned over; and third, the owner of the horse and bees suffers from the loss of his property, more or less.

"ITALIANS A GREAT DEAL BETTER THAN BLACKS."

We went into winter quarters with 68 colonies, stores rather light. Our apiary is well Italianized from Hayhurst's best Italian queens. We like them a great deal better than the blacks, on account of their gentleness and being so easy to handle. We use the Langstroth hive, four inches short. Should such a hive be called Simplicity, or not? If not, then what should it be called? Bees are not so plentiful in this vicinity as they were a year ago. But very little honey was made during the latter part of the season; in fact, the season has been poor for section honey. Father traded two hives with bees for a sulky for my brother to carry the mail with next summer. Father hires it carried through the winter.

CHARLIE H. BLACK, age 9.

Ellis Mound, Ill., Dec. 14, 1885.

Friend Charlie, the name "Simplicity" hive has been given to it principally because of the simple way in which it is made—a box without top or bottom, and so made that any number can be tiered up, exclud-

ing wind and rain. A hive thus made I should call "Simplicity," no matter what dimensions the frames are.

A LITTLE GIRL WHOSE GRANDMA HAS 52 COLONIES; CANARY BIRDS.

I am staying with my grandma this winter, and going to school. My grandma has lots of bees. She has 52 colonies, 42 in the cellar and 10 outdoors, packed in leaves. I helped to rake the leaves to pack them in. The bees did not make much honey last season. We have a pair of nice canary birds, and they are just beginning to sing. I feed them every morning before I go to school.

NELLIE G. MARTIN, age 11.

Grandview, Iowa, Jan. 7, 1886.

Sister Maude has a canary bird something over a year old. You just ought to see how saucy he can be. Why, he seems to have a particular spite at me. When he sees me coming he will begin to scold and bristle up for a fight. How he does delight in pecking at my finger! and he can hurt too. Sometimes we put before him a looking-glass. Do you think he admires himself? not a bit of it. He thinks it is another bird, and the little "goose" will fight at his imaginary foe for nearly half an hour sometimes.

ERNEST.

FROM 2 TO 10, AND 60 LBS. OF HONEY; TIERING DOWNWARD.

My papa had two box hives of bees in the spring, and he transferred them as the A B C book said, and had very good luck. He increased to ten hives; got about 60 lbs. of honey from them, and made two nuclei. They did very well and papa fed them. I like to see the bees take their feed. Papa has packed eight of them in sawdust, as James Heddon says, and one as Cyula Linswik says, and one is not packed at all. The one that he packed as Cyula Linswik said, came out of a hole there was in between the chamber floor and the wall below, and papa sawed out a piece of the floor where they were, took out the bees and honey, and gave the honey to a man. Papa fed them with sugar syrup, and they are in good shape now. He tried some in two other houses, and could not get them. They built the comb down between the walls, and carried off some of the feed down there. Papa got stung once, trying to get them out of the house.

My brother wrote about papa buying the bees at auction. There was a man who bought a hive of bees when papa did, and put them up high under an old shed. They did not swarm, but built comb on the under side of the hive. They have been there two years now. Papa went to see them last summer. They had as much comb under the hive as they did in it. The comb under the hive was covered with bees, and the man said the bees covered the comb the fall before that way, and they wintered so last winter, only they kept working up into the hive through the winter, but did not all get up until spring. BELLE M. WANZER, age 9.

Litchfield, Ct., Dec. 10, 1885.

MOVING BEES IN A SPRINGLESS WAGON OVER A ROUGH ROAD.

Mr. Ernest R. Root:—As you have charge of the juvenile department I shall address you instead of your father. As I was named after you, I think you will be more apt to give room to my report, if you call it. I suppose I was named after you.

I am eleven years old, so you will know whether I was named after you or not. My papa is taking GLEANINGS; and of the dozen papers he is taking, I am quite sure he likes it best. Pa is much interested in bees. The Rev. Granville Houchins, who is going to assist pa this year in bee-keeping, says pa has the bee-fever. Mr. Houchins has had much experience in keeping bees. He is a preacher and a school-teacher. I am going to school to him now. Mr. Houchins has an A B C book that your father wrote. Pa has "Quinby's New Bee-Keeping."

Mr. Houchins and pa bought 19 stands of bees out on Flat-Top Mountains, about 25 miles from here, and the way is very rough. The bees were in hollow-log gums. Now, the way they got the bees home is what I wish to report. They hired a heavy two-horse wagon, without springs, as they could not get one strong enough with springs to bear the bees up over the rough roads. The wagon-bed was not large enough to hold all the gums, so they took out the hind gate and laid some long plank in the bottom of the bed; then they turned the gums bottom up and tacked some old cloth on the bottom of the gums. They filled up the wagon-bed with the gums, after they had put some straw in first; what gums were left they put on the ends of the planks that were put in the bottom of the bed, and which were longer than the bed. Then they put some plank on the sides, and fastened all in with rope. Mr. Houchins thought the bees would smother, so he got an old wire fly-trap and cut it up in small pieces; then he cut some pieces out of the old cloth he had nailed on the mouth of the gums, the same size of his wire pieces; then he sewed the wire pieces over the hole. This was to give the bees fresh air.

AN ORIGINAL SUBSTITUTE FOR WIRE CLOTH.

He did not have wire enough, so he got a lot of goose-quills and cut the ends off so as to leave them hollow; then he cut beards on the quills, on each end, commencing in the middle; then he put the quills through the cloth. The beards would not allow the quills to work out. The quills were to give the little fellows breath. The bees were three days and nights on the road, owing to the bad roads, rainy weather, and high water. They all came through all right except one hive, and it only had two or three dozen dead bees in it. This was because it was not quite so well ventilated as the others. ERNEST B. HUGHES.

Pipestem, W. Va., Dec. 10, 1885.

Your father must be one of the old original subscribers of GLEANINGS to have named you after me. Let me see: GLEANINGS is 13 years old this month—just the age of Blue Eyes, and I at the time was 10 years old. I declare, it makes me feel old, and yet I hope I shall never be too old to be young.—Your father certainly did well to move 19 swarms 25 miles over a rough mountain road on a wagon without springs.—You have a very original substitute for wire cloth, but in what respect do the bearded goose-quills assist in the ventilation? I should think that small holes through the cloth would answer equally well. Perhaps I do not "catch on" to the idea. ERNEST.

HAS LOST ONLY ONE SWARM IN SIX YEARS.

My pa has 55 swarms of bees. He has lost but one swarm of bees in six years. We got over a ton of comb honey this year. I help with the bees what I can. I have a little brother six years old. He

and I go to school one mile. I also have a little baby-brother. He never saw Christmas till the one just past. He is three months old, and can laugh and play.

ALTON D. HARMON, age 9.  
Cambridgeboro, Crawford Co., Pa., Dec. 29, 1885.

#### SEALS.

When I was at Santa Barbara last I heard that there were some seals in cages on the wharf, so I went down to see them. There was an old mother and her little one in one cage, and three larger ones in another cage. They caught them from one of the islands twenty miles from Santa Barbara. They caught them with the lasso; and when they saw one they would all throw their lasso at him and catch him by different parts of the body and drag him on shore and put him in a cage that they had ready for him. They repeated this until they had caught those that I mentioned before. They then sent them to Santa Barbara for the people to see. The next morning they took them to San Francisco for Mr. Woodward, for his garden. They had very mild eyes, but for all that they were very fierce. They would snap at you if you put your hand near them. They are so very quick that they would turn clear over and grab a stick so quick that you could hardly jerk it away in time to keep them from grabbing it. Some of the boys were trying to pull out their whisksers, when the owner came along and made them stop.

ERNEST C. HILTON.

Los Alamos, Cal., Dec. 26, 1885.

At Chicago, a couple of years ago, after I had visited T. G. Newman's place of business, I went to Lincoln Park. Among the notable features of this resort was a seal, or, perhaps, a sea-lion. At any rate, he would swim in the water at an astonishing speed, and bark very much like a dog at the passerby. I remember that one old gentleman pointed his gold-headed cane at the animal's nose. At this the seal seemed immediately to take affront, and, with wonderful sagacity, swam to the other end of the pond. Here he disappeared under the water, and almost immediately reappeared directly in front of his offender, and then with one tremendous splash almost drenched the possessor of the cane. As you say, they seem to be wonderfully quick and keen.

ERNEST.

#### THREE BEES DIE FROM THE EFFECTS OF THEIR STINGS IN EIGHT, SEVENTEEN, AND TWENTY HOURS RESPECTIVELY.

My brother keeps bees, and we let three sting a piece of soft buckskin, and they lost their stings. We put them in a cage and feed them all they wanted to eat. One lived eight hours, one seventeen, and the other twenty. I have *Our Homes*, part first and second. I read them out loud to mother and father, and my sisters and brothers. Mother says the books are worth one dollar. I have two brothers and two sisters; my brother likes *Our Homes*.

NETTIE H. CRANSTON.

Woodstock, Ohio, Dec. 20, 1885.

Thanks for the additional light you furnish. In former cases bees have lived four, five, and six hours after having stung; but you give an incident of one surviving 20 hours. Now, while we think we have established with almost certainty that bees die after the operation, yet this may not be invariably the case. We have been led to suppose, or, rather, an opinion has prevailed,

that bees have not only lived, but have even gathered honey, after losing their sting. I have seen this statement somewhere in one of the bee-books. Does any juvenile or anybody else know of such a case, or that a bee lived two days or after? In dealing with science we must deal exactly, and must not jump to the conclusion too soon, that bees always die soon after losing their sting.

ERNEST.

#### REPORT FROM A CARP-POND; ALSO ABOUT THE CALADIUM ESCULENTUM.

Grandpa has 75 hives with bees, and pa has 4 stands. We live with grandpa. I have five brothers and two sisters. My ma is dead. I have a little blue-eyed sister nine months old. My ma died when she was just eight days old. Grandma has the baby to take care of. Grandma says she writes grandpa's letters to you. She says she sent you a *Caladium-esculentum* root. Did you ever get it? Grandpa has a fish-pond with lots of German carp in. Last summer we ate some fish. Grandpa says they are about as good as shad.

Pekin, Ill.

IDA B. LAROSH, age 10.

Yes, friend Ida, we got the *Caladium esculentum*, and it grew nicely; but we did not see water dripping from the leaves, unless it was kept very wet. I presume if it grew in a swampy place where the ground is very rich it would have water on its leaves all the while. Give my thanks to your grandma, friend Ida.

#### A LIVING FLY-TRAP; HOW MANY FLIES WILL A TOAD EAT?

Your article in *GLEANINGS* last summer, about toads, was very interesting; and as we are now allowed to write about our pets, I will tell you about a pet toad we once had. A few years ago one came into our summer kitchen through a hole in the floor. We allowed it to stay and catch flies, so after that it would come up every day. One day we put some sugar on the floor to attract the flies, and when the toad came up we counted the flies it caught. It ate 130; and seeming to think that enough for one meal, it went away. I think a toad is a splendid fly-trap. Papa says: "If you go to your carp-pond next spring about the time the little 'pets' close their concert for the season, you will likely hear a musical note in a trilling monotone; and if you look closely you will see Mr. Toad, with head erect and chest expanded, pouring forth his song of love." He also says: "The little *black* polliwogs become toads, and the brown ones frogs." I will tell you about our bees in my next.

ETHEL J. BEATTY.

Shaw's Landing, Pa., Dec. 28, 1885.

Thank you, Ethel, for your very interesting letter about your little pet. You have a capital fly-trap indeed, and I should say that master Toad would not have much room left after having dined upon 150 flies. Whew! I wonder if he felt as little boys do after they have had their Christmas dinner. I fancy bees would go down the same wide mouth to destruction, could his toadship but have the chance. Most certainly we like to hear about pets when the spirit of the fine print at the head of this department is adhered to. This you certainly have done; and to encourage others I think we shall send you a chromo.

ERNEST.

## OUR HOMES.

Thou shalt love thy neighbor as thyself.—MATT. 19: 19.

**F**RIEND ROOT:—You are a Christian, and have had long experience, hence I ask your advice. I was once a professor of religion. I was young, and became a backslider. I have never since enjoyed myself. I saw more happiness while an active member of the church than I have ever seen in the long years since. Now, on the first day of January, 1886, I started again, and am going to join the church and try to be willing to bear my cross in every instance. I owe a good many debts, most of them small ones, and I am going to write or call on all my creditors and let them know that I am now going to make restitution for my sinfulness just as fast as the Lord will let me. My prospects are at present very flattering for the coming season. Have I the right, as a Christian, to invest in one or two bee-journals as long as I am owing debts? Now, it seems to me that it would be right for me to invest in about two good journals, as I believe by such an investment that I could then make enough more than I would if I took no journals. Am I right? If right, will you let me have GLEANINGS for 1886, and let me send you untested Italian queens, or money, whichever is most convenient, in June, 1886, subscription for 1886 full?

I want to be able, from this time onward, to do just what my conscience tells me is right—to pay every man just what I owe him, and always do a little more than I think right, rather than to do any less than my conscience tells me is right. I always thought I was a sort of moral man, but I can now see how useless my life has been, to what it might have been had it been spent in the service of my Master. I could write much more, but it seems to me wrong to occupy any more of your time. Pray for me that I may ever be a servant of God henceforth. X. Y. Z.

Although the above letter was not written for publication, I am sure our friend who writes it will excuse me for using it in this way when I assure him I think the story of his experience and trials may be a means of helping many another brother. I thank you, friend X. Y. Z. for the great confidence you repose in me in wishing for my advice, and most gladly do I give it, and most gladly do I pray for you that you may hold out and prove faithful; for if you do, I know that God will bring you safely through all your troubles.

In regard to the question you ask, and all other questions of this kind, there may be differences of opinion; and very likely many of the brothers and sisters will think I am a little extreme and a little severe in the plan I would recommend; but, dear friends, I have had years of experience in this matter in watching boys and girls who had foolishly let their expenses go beyond their income, as well as older people; in fact, this one sin of contracting debts that can not be paid has been one of the most grievous in leading astray those who seemed to have started well, but got off from the track. As I understand the matter, I am not the one to advise as to whether you should take a bee-journal or not, or make other investments of a like

nature. So long as you are owing an honest debt, the money you have in your possession, as I see it, is not yours: it belongs to these friends who have been so kind as to credit you; and when any question comes up as to investments, aside from the one investment of using what little money you have to pay debts, I think *they* should be consulted. It is not only that you want to succeed in eventually paying all you owe, but it is that you may honor the Master, not only at some future time, but even now. You may meet sickness or death, and be absolutely unable to pay these debts. How shall you honor the Master meanwhile—that is, before you are able to pay your debts? What ought a Christian to do in such cases? It is true, you must have a little money for necessary expenses; for if you decide it best to hand over *every* dollar to your creditors as fast as you earn it, it might so cripple your abilities that you could not work to advantage. Now, whether the amount is large or small, I would try to do it on a basis something like this: I would first sit down with pencil and paper, and make a neat and accurate list of all I was owing my friends; then I would go to them personally, or write them, and tell them just how the matter stood, and ask permission of them to use what little money I might have, in such ways as might seem best and wisest. If you are owing these friends money that ought to be paid, the money you have in your possession is theirs and not yours. If you can make an arrangement with them to wait on you until some set future time, all well and good. Then you can meet them and look them in the face without fear or shame, and without the recollection of broken promises. My experience has been, that there are very few people in the world who will not willingly agree to wait for money, with a reasonable expectation; and especially is this the case where you mutually agree upon a fair rate of interest, and keep the interest paid. Where it is impossible to pay the debt, it is oftentimes within the debtor's power to pay the interest—say yearly, semi-annually, quarterly, or monthly, as may be agreed upon. Now, even if this payment is only a few cents it is a sort of guarantee that you mean to be straightforward and honest. It goes a very great way toward giving confidence. I would advise one who is in debt, as you say you are, to sacrifice a great deal, and go to a great deal of trouble to pay this matter of interest promptly; and it has often seemed to me as if God took pleasure in honoring a man who pays interest promptly, by helping him very soon to pay the principal also. This matter of paying interest seems to get one who is down, upon his feet again. If he is not paying up the principal as he agreed and expected to do, he is doing the next best thing. A dollar is a small amount of money, and some may laugh at me when I say that, if I were you, I would not even subscribe for a bee-journal until I had the consent of my creditors. There may be several other investments you would like to make. Put them down in writing, submit them to your creditors, with the reasons you have given me; and if they say, "All right, old fellow,

send for your bee-journal," then you can do it with a clear conscience. Just try it and see how much happier and light-hearted you feel at once. The idea is, that you have obtained an honorable discharge from the debt for the time being, and no one whom you are owing can say, as you take your periodicals from the office, "I think Mr. X. Y. Z. had better pay me what he is owing me before he spends money in that kind of way." When you want to go to prayer-meeting, and are called upon, as God calls upon us all, to stand up and testify for the Master's sake, how much better you will feel when doing it, if you have made honorable arrangements for all these outstanding debts! It seems to me, dear friend, you do not know how much it helps the world to have faith in Christianity and in a Christian profession, to have each follower of Christ attend to these little things—these small items.

You say you were once a professor of religion when you were young. I suppose you know, my friend, that the danger is ten-fold greater that you go back, when you have once wandered away from the fold. The horse that has run away once is very apt to run away again; and after he has run away three or four times the world generally settles down to the conviction that there is no cure for him—he is always nothing but a runaway horse. I do not say this to hurt your feelings, but I say it to warn you of the very great need there is of being careful in your second start. It is not at all impossible for one to repent and come back afterward, when he has wandered away, or even if he has repeatedly deserted his Savior. It is only a simple matter of the will. By dallying with sin, the will power becomes weakened; and when temptation comes we are apt to think it does not make very much difference if we go back to our sins, and then at some future time make still another start; and by and by the poor deluded victim of Satan does not care to try any more—he gives up to his fate: therefore, one who has once slipped back, and starts again, must recognize that it is of the greatest importance to watch every little thing, even small trifles like taking a dollar to subscribe for a bee-journal. The laws of God and the laws of our land are terribly severe on those who take what belongs to their neighbors, without rendering a proper equivalent. Our text says, "Thou shalt love thy neighbor as thyself;" and the law of our land says, "If you do not respect the property of your neighbor, you shall be severely punished."

Last Sunday I met two of our neighbors in jail, who were bowed down with grief. One of them is the father of a little family. He was sentenced to thirty days in the work-house, in a neighboring city, and a fine besides. What do you suppose it was for? The two men together stole four chickens of a neighbor. They were drawing this neighbor some wood, and the chickens were very tame, and came so near where they were unloading that it was an easy matter to pick them up. They took two apiece, and took them home; but afterward their consciences troubled them so much that they went to this neighbor and paid him to his full satis-

faction for the fowls. The matter was supposed to be all pleasantly settled. Not so, however. A third party heard about it, and had them arrested. The fact that they had settled for their folly, and paid over the cash for twice what the fowls were worth, did not alter it. They were in heart, and before God, guilty of stealing, and the law did not release them, even if they were sorry afterward, and settled it. Now, forgive me if I cut close. Suppose these two men had, by entreaties, urged this neighbor to trust them for a few days for the fowls, but afterward, finding themselves cramped for money, had put it off from time to time, and finally never paid him. Suppose, too, that when he was importunate for his money for the chickens the men should get angry, and tell him flatly they would not pay it until they got ready, and to help himself if he could. In this latter case the law could not touch them—that is, in most States at least, they could own considerable personal property, exempt from any claims the creditors could make. If my knowledge of the law in the above matter is at fault, please excuse it; but I think I have it substantially correct. In one case the owner of the fowls is wronged as much as in the other, or a great deal more; because, in the first case, he lost no money at all—in fact, he got a big price for the fowls. In the latter case he never gets any thing, and perhaps spends a good deal more time in trying to get it than the fowls are worth. I have dwelt on this, because I wish to have the friends all understand, especially the younger ones, what a grievous thing it is to incur a debt one can not pay.

Perhaps I might touch on another phase of this matter of debt. There are those who deliberately contract debts knowing there is very little or no prospect of being able to pay them. The law can punish a thief, but it can not punish this class. I believe, however, that this latter class is comparatively small. I have never met many people who did not fully intend to give value received when they made purchases; but even with honest intentions, we often harm ourselves and harm our neighbors. The class of people who do these things are often those who are bright, cheerful, and hopeful; and, my good friend X. Y. Z., I hope you will excuse me for saying that I feel almost alarmed to hear you say, "My prospects are at present very flattering for the coming season." May be they are; but judging from past experience, I believe I would rather you felt as if they were the other way. I believe I have known young men to get along better when they looked at the future something like this: "It is a sad truth, that the prospect before me is not flattering. If I succeed it will be only by earnest, faithful, hard work, early and late; therefore I have no money to spend on amusements. I can not afford to stop and listen to gossip. I must be at work by daylight, and work while the daylight lasts, or I shall never be able to meet my honest obligations." One who feels this way will come out all right.

In regard to taking queens of you in June, 1886, we have been obliged to tell our friends that we dare not promise to take queens so

long ahead. We don't know what the future is. I should fear to make promises six months ahead, which it may trouble us to keep. Another thing, friend X. Y. Z., it would be, at least to a small extent, encouraging you in adding to the debts you have already. It is putting it off a long time ahead, I know; or, in other words, you have a good while in which to make the money. But this very thing I fear: A good many who, like yourself, have become involved, often seem to think if they can get an accommodation for a *long* time it is all right; but when the long time has expired, nine times out of ten they find themselves just as badly off, or worse, than when the debt was contracted. You have come to me for advice, and I have spoken my convictions very plainly and fully. Dear friend, I would not go in debt to the extent of one dollar, even if you can have six months' time in which to pay it, if I were situated just as you are, and wanted to pay up my debts and follow my Savior. The concluding part of your letter is excellent, and the spirit of it is right.

There is a part of your letter, back a little, that I wish to refer to. You say you are going to make restitution "just as fast as the Lord will let you;" that is, if he prospers you, you will pay your debts; but if he does not, how can you? I know there are two extremes in both ways here. Unless the Lord gives you health and strength you can not earn any thing at all, so you are dependent upon him. But we are all of us prone, I am sure, to get into a way of thinking, when we fail of doing what we know we ought to do, to give up and content ourselves by saying, "The Lord did not see fit to help me do what I wanted to do," when the truth is, we have not made proper use of the blessings already given us without stint. Those who have once gone astray, and started back again, are specially apt to get into this way of reasoning. I believe it is very seldom that God does not provide a way in such matters as this, where the one who is striving to follow him is in dead earnest in the matter. What I mean by "dead earnest" is to be self-sacrificing, careful, sober, and wise. In our zeal to pay our debts we might overwork ourselves, and thus defeat the object in view. But I do not think this oftens happens. People tell me I am overworked, a great many times, and doubtless they think so; but it is not true. It is true, however, that I waste my strength and energies, oftentimes, on things comparatively trifling and unimportant, and then I can not do the important work that ought to have taken the place of these.

Now, then, to the last point before us. How shall friend X. Y. Z. get a bee-journal, or several bee-journals, when they would no doubt be worth several times their cost to him? Candidly, dear friends, I do not know. I would give him GLEANINGS without charge, most gladly and willingly, were it for his best spiritual good that I did so. Yes, I would give him a hundred copies if I were sure it would result in building up Christ's kingdom. But my experience in gifts in this way has not been pleasant. I can look back

through the years, and see a great many times when I tried to make the path easier for some poor sinner, by gifts of money or other things that he had not earned, that I made it harder because I relieved him a little from the responsibilities that God wanted him to bear. I dare not do it any further. I have asked God to give me money that I might use it in saving souls. The money has come sometimes bountifully, and I have used it, as I thought, wisely; but it has almost always done harm unless I used it as a reward for fair and honest work. Friend X. Y. Z. has not asked me for any gift, it is true; but this thing had to be considered: What will be the best course for our boys and girls—yes, for our sons and daughters, in helping them to build a good Christian character? My reply is, that I know of no way but to let them earn the things they want, by the sweat of their face—by the exercise of their minds and muscles. I said I did not know of any way our friend could get a bee-journal, under existing circumstances. What I meant was, that I did not know any way except the one I first pointed out—get the consent of his creditors before he uses money belonging to them. I did not mean to say that I would not trust him for GLEANINGS for six months or a year, because I will gladly, if he wishes me to. Yes, he need not pay for it for five years, if he thinks best to do that way, after what I have said. I meant simply this: If he wants my advice, and wants me to stand in his shoes, to use a common expression, my advice for him is, not to run in debt one copper for any thing; get the consent of his creditors in the way I have marked out, and then pay cash down for every thing he buys, or else go without it. The accumulation of debt has made him enough trouble already. Don't have any more of it; and if there are other brothers or sisters situated in like circumstances, I say the same to them. Look at it as you look at any other temptation that Satan may hold before you. Say to him, "No, sir; get thee behind me, Satan," and then *make* him get behind. Do the same with other besetting sins, and ask God to help you to do it; and if a happy, useful, prosperous Christian life does not open up before you, then I shall be much mistaken.

Our text says, "Thou shalt love thy neighbor as thyself." Well, dear friend, suppose you were owing a neighbor money which you have promised him, and failed to get. Suppose, too, he needs it badly. You know it is not unlikely that he may be failing in his promises because you have failed in yours. His good name must suffer because he has been forbearing and patient with you. Well, now, under such circumstances suppose when you have some money that you might pay him, you should, instead of handing it over to him, use it for something you didn't like to give up yourself. Do you not see how very far you would be from obeying the spirit of the text? Do you not in reality act as if the text read this way: "Thou shalt love thyself better than thy neighbor, and under all circumstances let *self* come first when you are obliged to choose between the two?" The spirit of the text is to the

effect that we should consider our neighbor's own good or his best good, just as much as we should consider our own good. But when it comes to choosing who should be accommodated, yourself or neighbor, when the accommodation is due him, and is *not* due you, the obligation on your part becomes a very sacred one. If I owed a neighbor some money, and he needed it, and wanted it, I think I would do without a bee-journal, and, in fact, almost every thing else, until he willingly granted me permission to delay payment.

I do not by any means think it wrong for people to borrow money, or to borrow things. We confer great favors on our neighbors by borrowing things they want to lend, and many of us have money that we are very glad to loan to somebody who can make use of it so that it will be a mutual accommodation. Such transactions are right and proper. But the great important thing for a Christian to do is to keep on safe ground, so that he can not only pay the interest promptly, but pay the principal, say twice over, any time it may be asked for, and that, too, without any great sacrifice. I have sometimes invoiced myself something like this: "I am owing, say, one thousand dollars, or paying interest on one thousand dollars, borrowed money; but I own property that would sell readily right here at home, without much effort or time, for ten thousand dollars; therefore I can not in any case be very badly cramped." But suppose the circumstances should show like this: "I am owing one thousand dollars, but my whole effects would not probably sell for more than four thousand, if I were obliged to sell." Now, the above is not so bad; but still not what I should call really safe ground. I do not like to be in that predicament; and when our personal effects are not all together worth more than twice what we are owing, we are in great danger. Sickness, decline in values, fires, robbery, or things of that sort, are liable at times to place us where we can not show such a record before the world as every follower of Christ ought to show.

Now, why can we not be happy and satisfied and contented with the things we are able to buy, without running deeply into debt? Why, almost anybody will tell you that the satisfaction and real enjoyment is in being out of debt — or, at least, in owing so little that you shall never be distressed in paying it, should it be suddenly wanted. Has it ever been proven to you that happiness necessarily follows good speculations, or doing a large amount of business?

Now, friends, what is to be gained, after all, by running risks, and even succeeding in making good speculations? Is the good to be secured in any measure to be compared to the danger? What shall it profit a man if he gain the whole world, and lose his own soul? May God in his great and loving mercy watch over you, friend X. Y. Z., and give you wisdom; and may he bless these words that have come from one who is but a weak brother after all, not only for your use, but to the multitude of others like you whose eyes may fall upon this Home Paper. May he teach you the way to that only real enjoy-

ment and peace; and may he in the end lead us all to the golden gates of eternal life, where we shall comprehend and understand the very, *very* great importance of trying, at all times to love these neighbors all round about us as we love ourselves.

## GLEANINGS IN BEE CULTURE.

*Published Semi-Monthly.*

A. I. ROOT,

EDITOR AND PUBLISHER,

MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 15, 1886.

Be diligent that ye may be found of him in peace, without spot, and blameless.—11. PETER 3: 11.

PEAT INSTEAD OF MOSS FOR COVERING SEEDS.

SINCE writing "What to Do, etc.," for this issue, our gardener tells us that dried and sifted peat will answer nearly or quite as well as the dried and sifted moss that Peter Henderson recommends.

NAMING THE SEEDS.

THE *Rural New-Yorker* sends out a kind of field corn which they have labeled "Angel of Midnight." Truly, the *Rural* folks are booming with enterprise and "go ahead." They send all their patrons a good lot of nice seeds, any way.

THE HEAT OF OLD MOTHER EARTH, VS. STEAM HEAT.

OUR poultry-house, warmed by steam, gives us, during this zero weather, one egg a day—perhaps a dozen hens. A neighbor gets nine or ten a day from thirty or forty fowls. When I asked him how it came that they laid in the depth of winter, he said they were in a cellar under his barn, built on a side-hill. The heat of old Mother Earth keeps them warm. Are we all of us making the best of such natural facilities for warm underground quarters for our stock? The heat of the earth, when we once get fixed so as to utilize it, is cheaper than fuel.

A NEW SILVERHULL BUCKWHEAT.

PETER HENDERSON mentions, among his novelties for 1886, European silverhull buckwheat. We wrote him for particulars in regard to it. Even if it has but a little advantage over the old kind, we bee-keepers must have the benefit of it. Here is what he has to say in reference to it:

This is a most desirable acquisition for this country, and it has done remarkably well the past two seasons as far north as Northern Vermont, where the seed we now offer has been grown expressly for us. It may be depended upon to ripen in any thing like a favorable season from ten days to two weeks earlier than the native American silverhull or common buckwheat. Berry is small, with rounded corners, and of a beautiful silver-gray color; grows to the uniform height of three feet, standing up well and branching luxuriantly. Straw, a deep rich wine color when ripe. It is a heavy yielder and thus far is not so easily affected by drought and frost as other buckwheat.

We can furnish the seed in five-cent packages, or in larger quantities, at about three times the price of the old silverhull. We shall give it a thorough test this coming year on our honey-farm, and report,

#### DOES IT PAY TO HAVE AN IMPORTED QUEEN IN YOUR APIARY?

THIS question often comes up, and I should be glad of the experience of honey-producers in the matter. Do you get more honey from Italian bees, say only one or two generations from Italy, than from stock bred four or five years in our own country? Selecting for many generations the best honey-gatherers to breed from would probably improve on the stock received direct from Italy; but, how has it turned out in practice? A few years ago it was decided that bees from stock not very long from their native clime gathered more honey than Italians that had been a long time on our shores. Let us have some facts from actual experience.

#### OUR CATALOGUE OF VEGETABLE SEEDS, PLANTS, HONEY-PLANTS, ETC.

WHEN our last issue went to press, the type was already up for this catalogue, or nearly so; but we have been so crowded to get off promptly the circulars and price lists for the bee-brethren, that our own was obliged to stand still and is standing still yet. We hope it will be out, however, within the next ten days. Besides seeds and plants, it includes also supplies for market gardeners, and some supplies for the poultry business; also galvanized wire cloth for carp-ponds, fruit-dryers, etc., etc. Our facilities for getting the above goods at a low price are such that we believe we confer a favor in handling them; for by buying in large lots as we do, we are enabled to give prices on such things at retail, heretofore unknown.

#### HATCHING CHICKENS IN JANUARY.

THERE, I have gone and counted my chickens before they are hatched. It is one of our nice Brahma hens that is going to do the hatching, and she is under one of the benches in the greenhouse. When I put her there she would not sit down on her nest; but after I took thirteen eggs out of my pocket, and placed them beside her, she took her bill and pushed them under with great satisfaction, and sat down as motherly as one could wish. When it came breakfast time, however, she got into one of the boxes of lettuce plants, and don't you believe she made them fly? Some of them must have hit the glass overhead; and after she did the same thing next day, Mr. Weed, the gardener, wanted to have her discharged for bad behavior. We didn't, though; we just put some poultry netting around her, and now she sits in one corner, and sits equal to any new-fangled incubator. She started New-Year's day, so the chickens ought to hatch out on the 21st. In our next number I will tell you how many she brings out. I presume likely Huber will be able to count them.

#### SOLAR WAX-EXTRACTORS.

OUR friend Arthur Todd, of Germantown, Pa., sends us a copy of the *Bulletin de la Societe d'Apiculture de la Somme*, one of the most enterprising of our foreign exchanges, dated July and August, 1879, containing a picture of a solar wax-extractor, made by putting a pane of glass over the top of a machine that closely resembles Dadant's uncapping-can; so it seems that solar wax-extractors have been a good many years in use. And, by the way, I do not know why an uncapping-can might not answer excellently, with a circular piece of glass dropped down in the top a few inches, and then the whole machine inclined at the proper angle toward the sun. If the inside of the upper can is kept

scoured with whiting it will be an excellent reflector. I would drop the piece of glass down a few inches, to be out of the way of the wind a little more. Please let us have reports from this arrangement. Meanwhile we extend thanks to friend Todd, who was, we notice, an apicultural delegate to the Paris Exposition in 1878.

#### THE NECESSITY OF LARGE PROFITS ON SEEDS OF DIFFERENT KINDS.

WE oftentimes wonder why seedsmen pay, say a dollar a bushel for a certain kind of seeds, and retail them out for two or three dollars a bushel. One reason why there must be large profits is this: Every seedsmen wants to have enough seeds to supply all demands; but in order to do this there is no way but to buy a good deal *more* than enough; and as it is not advisable to use many seeds more than one year old, the surplus remaining on hand must be burned up, or sold at an insignificant price compared with first cost, or be fed to stock. Almost every year we have to throw away seeds of spider plant and figwort that cost us a good many dollars, or else face the other dilemma of being unable to supply the demand.

#### A BRANCH SUPPLY-HOUSE FOR THE FRIENDS IN THE SOUTH.

FOR years there has been much talk about some arrangement whereby our friends in the South might have their supplies, without paying the enormous express and freight charges that they have had to pay for years back. For instance, if a man wants ten pounds of foundation, and wants it right away, there is no way he can get it very well by mail, freight, or express, without paying about half its worth to him in the way of charges—that is, providing he deals with us, and a great part of our trade comes from the Southern States, especially the latter part of winter and early in spring. It is true, we have supply-dealers in the South, whom I would by no means forget; but none of them have ever felt like keeping the extensive and varied assortment that we keep. Well, for months past we have been corresponding with Mr. J. M. Jenkins, of Wetumpka, Ala., and he has recently paid us a visit, and looked the whole matter over, and we may say the arrangement is now completed. The goods are to be shipped to friend Jenkins by the carload, so that the freight is really but a small item. Where he has customers near to us he will have the orders filled from our place, and *vice versa*, and he will furnish *nearly* all we advertise, at our prices. Friend J. is not only a bee-keeper, but he is a railroad man, and has been for many years perfectly conversant with the whole matter of freights, north and south; and as he has also served as express agent, he is at home in regard to all express business. Furthermore, he is a man held in high estimation by all railroad companies in his section, and many of the managers of the different companies have expressed their willingness to assist him in the enterprise. Friend J. being a railroad man, has, by the assistance of other railroad officials, arranged to secure a wonderfully, low rate of freight from our place to his. He manufactures Simplicity hives from southern white pine, so as to sell them at our prices in Wetumpka.

Now, then, if we can not help in this great matter before us, of bringing about friendly relations, and especially friendly *business* relations, between the North and South, it will be funny.

## TOBACCO COLUMN.

### TOBACCO AND HEART DISEASE.

**T**HERE is one evil, and I think one of the greatest, yet I have never seen it in print. That is, sudden death from heart disease; but I say, tobacco disease. These deaths have increased a hundred fold since my young days. I am over 81 years old; 70 years ago I saw but one smoker, and he an old man or old woman, where we now see a thousand among the same number of people. Young men commenced smoking about ten years after; and about forty years later I saw, for the first time, little boys smoking.

We had no matches nor cigars till about 1830, hence smoking was more difficult. I never saw, in any newspaper of that date, an account of any children falling dead, although I read several weekly papers, but now I see accounts of several boys and girls who dropped dead at the age of about 14 or 15 years old. This evil increases as smoking increases. If the increase of smoking is as great for 50 years to come, I believe the sudden deaths will be 1000 times as great. And why? Because these children now smoking will raise children who will inherit the tobacco poison from them. Many infants in these days inhale this poison into their tender lungs the first days of their lives, from a smoking father, in a tight room. Since 1830, cook-stoves have been introduced; hence smoking in a shut-up room is much harder on an infant in the cradle, and all others, than it was when there were none but a few old people who smoked, and that in a chimney-corner, where nearly all the poison would go up the chimney.

I find that railroad offices are filled more with tobacco poison than elsewhere, and officers frequently drop dead, one lately in Cincinnati. No railroad officer should be allowed to smoke. It divides their attention, addles their brains, and hinders sober thoughtfulness; hence the danger of life and limb, so frequently of late, on railroads.

Plainville, O.

ISAAC LARRANEE.

### HOW THE "DOSE" CURED.

I did not think to explain myself. I used tobacco for about 20 years. I quit 4 years ago this fall. I have never used any since, and never expect to again. I am now 51 years old. I have read the "Dose," and it is the best I have ever seen. I will do all that I can to stop the use of tobacco. I will lend the Dose to others to read. I have been handling bees for five years. I have never had more than 20 colonies at one time. I have sold down to four this winter. I don't think this country is very good for honey. There has been but one good year since I came here.

LEWIS N. COOPER.

Tehama, Cherokee Co., Kansas, Dec. 24, 1885.

I hereby promise to pay for the smoker, whatever the price may be, if I ever am weak enough to chew or smoke any more tobacco, or use it in any other form.

J. C. PARKS.

Scotsboro, Ala., Nov. 16, 1885.

I have quit the use of tobacco, after five years' use; and if you think me entitled to a smoker, send me one; and if I ever use the weed I will pay you for it. I take a deep interest in bees.

WARREN KEY.

Victory, Carroll Co., Ga., Nov. 30, 1885.

### AN HONEST OWN-UP FROM ONE OF OUR BOYS.

I returned home from Sioux City last Monday; that is why I failed to answer your letters. I was gone two months. The 75 cts. is for the smoker you gave me for quitting tobacco. I have broken my pledge. I smoked a cigar to ease my toothache while in Iowa, but it makes no difference. I broke my pledge. However, I have quit again. Don't put me in the Tobacco Column this time until I see if I can hold out.

REESE POWELL.

Mineral Point, Wis., Dec. 18, 1885.

May God bless you, friend Reese, for your truthfulness, even though you *have* broken your pledge. You have fulfilled your promise to the very letter, and I am very, very glad to hear you say you are going to try again. I have disobeyed you a little in putting this in print; but since I do it for the encouragement of lots of other boys who are looking on, I am sure you will excuse me. I believe if I were you I would bear the toothache rather than take the risk of starting the old habit again. May God bless you, my young friend, and help you to hold out.

### CONVENTION NOTICES.

The North-Eastern Ohio and North-Western Pennsylvania Bee-Keepers' Association will hold its seventh annual convention in Meadville, Pa., Wednesday and Thursday, Jan. 20 and 21, 1886.

New Lyme, O.

C. H. COON, Sec.

The next meeting of the Maine Bee-keepers' Association will be held at Skowhegan, Maine, Jan. 19, 20, 21, 1886.

WM. HOYT, Sec'y.

Ripley, Me.

The Bee-Keepers' Association of Hancock Co., Ohio, will meet in Findlay, Sat., Jan. 23, 1886.

Stanley, Putnam Co., Ohio. S. H. BOLTON, Sec.

The Twelfth Annual Convention of the Champlain Valley Bee-Keepers' Association will be held in the basement of Town Hall, Middlebury, Vt., Thursday, January 21, 1886. A general invitation is extended to all.

R. H. HOLMES, Sec.

Shoreham, Vt.

The Indiana Bee-Keepers' Association will meet in Indianapolis, Jan. 21, at 1 P. M., in the State Board of Agriculture Rooms, opposite the new Statehouse. We should be pleased to have all meet with us, and hereby send an earnest invitation to come.

JONAS SCHOLL, Pres.

Lyons Station, Fayette Co., Ind.

The Eastern New York Bee-Keepers' Association will hold its Annual Convention in Agricultural Hall, Albany, Tuesday, Wednesday, and Thursday, January 26, 27, and 28, 1886. There will be three sessions each day after the first. First session Tuesday, 26, at 2 o'clock P. M. All interested in bee-keeping are requested to attend, and bring apianian supplies for exhibition. The programme will consist of essays on important subjects, discussion of questions of interest, etc.

Haltmoon, N. Y.

C. W. PHILO.

The North-Eastern Michigan Bee-Keepers' Association will hold its fourth annual convention, Wednesday, Feb. 3, in the Council rooms at East Saginaw, Mich. The Sherman House, one block from place of meeting, will entertain those present, at \$1.00 per day. Saginaw folks are working hard to make every thing pleasant for those from abroad. Let us turn out and show that we appreciate their efforts.

W. Z. HUTCHINSON, Sec.

Rogersville, Mich.

The Seventeenth Annual Convention of the New York State Bee-Keepers' Association (formerly North-Eastern) will be held in Rochester, N. Y., on 16th, 17th, and 18th of Feb., 1886. This will be one of the largest meetings ever held in the State. A large number of our most experienced bee-masters will take part in the discussions, and several essays

will be read from a number of our most practical men throughout the country. The programme is complete. If you are young in the work, you can not afford to stay away. If older, you may give some good hints, if you get none.

We want a good display of all kinds of supplies and fixtures. We have a room on purpose for exhibits, and any goods sent to the secretary, in care of the "National Hotel," Rochester, N. Y., will be placed on exhibit and either sold or returned to the exhibitor, as directed.

Reduced rates at the hotels have been secured, also rates on some of the railroads. All will have to pay full fare one way; return ticket at  $\frac{1}{2}$  fare, by presenting certificate from the secretary, who will furnish them on application. We want an active vice-president in every county in the State. Please name or send the name of some one for your county.

Perry Center, N. Y.

F. C. BENEDICT, Sec.  
L. C. ROOT, Pres.

## MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c. PERFECTION COLD-BLAST SMOKERS,

Apply to CHAS. F. MUTH & SON.

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P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers."

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New Patents and Important Improvements. Special attention given to

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Chaff hives complete, with lower frames, for \$2.50; in flat, \$1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List.

A. F. STAUFFER & CO., Sterling, Ills.

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FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kermore, B. C. C., & S. W. R. R.

WATTS BROS., Murray, Clearfield Co., Pa.

1tfdb.

**FOR SALE.** Eureka Safety Engine and boiler, 4 horse-power.

1-2d. A. A. FRADENBURG, Port Washington, O.

## COMB FOUNDATION.

We have just purchased a large lot of fine beeswax at a bargain, which will enable us to sell fdn. very cheap for cash.

**NOW IS YOUR TIME TO PURCHASE.**

Our fdn. will all be manufactured on the celebrated Given press. Write for special rates to dealers and large consumers, stating how much you want, and what kind, whether thick or thin. We send sample of foundation free. Our Price List of

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for 1886 sent on application. Estimates given on almost all kinds of hives and frames. Address

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The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages.

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Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,

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## FOR SALE.

400 COLONIES OF BEES.

Will exchange for good horses and mules.

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## DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretschmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; C. T. Dale, Mortonville, Ky.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O., and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,

3btfdb

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**FOR SALE.** Five pair fine Pekin ducks, at \$4.00 per pair.

1tfdb D. D. FARNSWORTH, Clive, Polk Co., Iowa.

## FOR SALE.

100 lbs. *Bee-svax*, choice yellow, per lb., 30 cents; 100 lbs. dark, at 25 cts. per lb., warranted pure and good wax.

50 lbs.  $1\frac{1}{4}$ -inch *Wire Nails* (barbed) 13 gauge; in lots of 10 lbs. and over, per lb., 7c.

*Stencil and Key Check Die Outfit*. Price and full list on application.

*Four Horse-Power Engine and Boiler* (B. W. Payne & Sons' make), not used over three months. Warranted in good order. Also *18-inch French Burr Corn and Feed Mill*.

*One Barrel-Steamer* for cooking feed. Furnace,  $1\frac{1}{4}$ -inch boiler iron, "T" pipe, brass cocks. In good order. Prices, etc., on application.

H. L. GRAHAM,  
GRANDVIEW, LOUISA CO., IOWA.

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To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

**AT THE LOWEST PRICES.**

ITALIAN QUEENS AND BEES.

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DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

### Recent Additions to the Counter Store.

Postage.] [Pr. of 10, of 100

#### THREE-CENT COUNTER.

- |  |           |
|--|-----------|
| 4   TOOTH-PICKS, in wooden holders, all ready to set on table .....          | 28   2 75 |
| 3   PAIL, TOY TIN, painted different colors, with or without cover .....     | 28   2 50 |
| 2   SCREW-DRIVER, sewing-machine, wood handle; handy for many purposes. .... | 29   2 85 |

#### FIVE - CENT COUNTER.

- |  |           |
|--|-----------|
| 4   ENVELOPES, white, medium size, bunch of 25, good quality ..... | 45   4 00 |
| ESSENCE Cinnamon and Wintergreen, 2-ounce bottles .....            | 47   4 50 |
| 3   STAND FOR HOT DISHES, tinned wire .....                        | 42   4 00 |
| 10   JUTE TWINE, $\frac{1}{2}$ -lb. balls .....                    | 48   4 75 |
| 6   INESTAND, no cover, a little beauty .....                      | 45   4 25 |

#### TEN-CENT COUNTER.

- |   |           |
|---|-----------|
| 78   AXLE-GREASE, MICA, of wide reputation                                | 95   9 00 |
| 3   FILE, slim taper .....  | 90   8 50 |
| 2   FILE, ROUND BASTARD, 5 in. ....                                       | 80   7 00 |
| 10   MEMORANDUM-BOOKS, 64 pages, 10c per doz. ....                        | 95   9 00 |
| A large one 5x11, 144 pages, ruled for accounts, for 10c.                 |           |
| 3   SCISSORS, 6 in., nickel-plated; a wonder for a dime .....             | 90   8 50 |
| 5   UTILITY MEASURE, tin, $\frac{1}{2}$ -pint, with funnel attached ..... | 95   9 00 |
| Just the thing for filling bottles.                                       |           |
| LAMP-SHADE HOLDER: this is glass, and takes the place of a chimney .....  | 95   9 00 |
| 2   POULTRY BOOK, 48 pages, full of pictures .....                        | 75   6 50 |

#### FIFTEEN - CENT COUNTER.

- |   |              |
|---|--------------|
| COFFEE-POT, 3 qt., fire-proof bottom.                           | 1 40   13 50 |
| It won't leak, even when solder melts off.                      |              |
| 7   UTILITY MEASURE, tin, 1 pint, with funnel attached .....    | 1 30   12 00 |
| 6   FILE, or WOOD RASP, either flat or half round, 8 inch ..... | 1 45   14 00 |

#### TWENTY-CENT COUNTER.

- |  |              |
|--|--------------|
| 4   KNIFE, one-blade, large, fine steel...                                 | 1 90   18 00 |
| 9   UTILITY MEASURE, 1 qt., with funnel attached; a very useful size ..... | 1 75   15 00 |

#### TWENTY-FIVE CENT COUNTER.

- |   |              |
|---|--------------|
| 8   BRUSH, CLOTHES, genuine bristle; good                                     | 2 25   21 00 |
| 7   BRUSH, HAIR, a beauty .....   | 2 25   20 00 |
| OIL-CAN, a graduated glass one in tin case holding $\frac{1}{2}$ gallon ..... | 2 25   21 00 |
| COAL-HOD, japanned, good size .....   | 2 40   23 00 |
| 10   LADLE, or CUP-DIPPER, agate-iron ware                                    | 2 40   23 00 |

| FRY-PAN, 10 inch .....
 2 25 | 21 00 |

Made of heavy, polished sheet iron, all in one piece. Handle covered with tin, to keep it cool and prevent it from heating the hand; a beauty.

#### THIRTY-FIVE CENT COUNTER.

- |  |              |
|--|--------------|
| CELERY-DISH, beautifully engraved glass .....                      | 3 25   31 00 |
| 18   HAMMER, bell face, No. 2, best steel .....                    | 3 25   31 00 |
| OIL-CAN, tin, 2 gal., good .....                                   | 3 25   30 00 |
| A graduated glass oil-can in tin case, 1 gal., same price.         |              |
| TEA-KETTLE, medium size, made of the very best tin .....           | 3 35   32 00 |
| 15   UTILITY MEASURE, $\frac{1}{2}$ gallon .....                   | 2 25   32 00 |
| An accurate measure with a funnel attached; a most useful utensil. |              |
| 15   WASH-BASIN, $\frac{9}{16}$ in., agate-iron ware               | 3 40   32 00 |

#### FIFTY-CENT COUNTER.

- |   |              |
|---|--------------|
| FRY-PAN, agate-iron ware, 10 inch...  | 4 50   42 00 |
| KETTLE, agate-iron ware, 4x7 $\frac{1}{2}$ in...                                  | 4 50   40 00 |
| 30   WASH-BASIN, agate-iron ware, 12 in.  | 4 75   45 00 |
| This ware looks like polished granite, and will last a lifetime with careful use. |              |
| UTILITY MEASURE, 1 gallon; with funnel attached .....                             | 4 25   40 00 |

#### SEVENTY-FIVE CENT COUNTER.

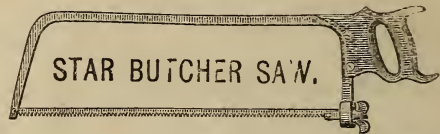
- |                                     |              |
|-------------------------------------|--------------|
| KETTLE, agate-iron ware, 4x10 ..... | 7 00   68 00 |
|-------------------------------------|--------------|

#### ONE-DOLLAR COUNTER.

- |                                       |              |
|---------------------------------------|--------------|
| KETTLE, agate-iron, 5x11 .....        | 9 00   85 00 |
| TEA and COFFEE POTS, agate-iron, 2 qt | 8 50   80 00 |

#### MISCELLANEOUS COUNTER.

FOR \$1.50.



STAR BUTCHER-SAW FRAME. The frame is beautifully nickel-plated, and the saws are tempered very hard, and are thrown away when dull, as a new one is cheaper than filing it. They stay sharp many times as long as an ordinary saw. Blades are 16 in. long; price of blades 10c each or \$1.00 per doz. A larger frame for \$2.00.

Agate-iron ware, DISH-PAN, 14 qt.: KETTLE,  $5\frac{1}{4}$ x13; TEA and COFFEE POTS, 4 qt.: TEA-KETTLE, 4-qt., \$1.50 each.

FOR \$3.50.

An 8 DAY COTTAGE STRIKING-CLOCK, in a very pretty wood frame, gilt trimmed. If you want an alarm, it will be 50 cts. extra.

*The following Counter Goods have been reduced from*

#### 15 CENT TO 10 CENT COUNTER.

- |   |           |
|---|-----------|
| 3   FILE, DOUBLE-ENDER, with handle .....   | 90   8 50 |
| We have been able to get these so cheap as to offer them, handle and all, for a dime. |           |

#### 20 CENT TO 15 CENT COUNTER.

- |   |              |
|---|--------------|
| 18   SCREWS, Bessemer steel, gross boxes, two sizes, 1 inch, Nos. 8 and 6 ..... | 1 30   12 50 |
|---|--------------|

#### 25 CENT TO 20 CENT COUNTER.

- |   |              |
|---|--------------|
| 25   SCREWS, Bessemer steel, per gross, 4 sizes, $1\frac{1}{4}$ in., Nos. 9 and 10, and $1\frac{1}{2}$ in., Nos. 8 and 10 .....                 | 1 80   17 50 |
| 50   WASHBOARD, "O. K." double .....  | 1 75   15 00 |
| This is a nice, light, good washboard, and with each one goes a very pretty and useful little recipe book, worth almost the 25 cents of itself. |              |

#### 35 Cent to 25 Cent Counter.

- |  |              |
|--|--------------|
| 38   SCREWS, Bessemer steel, per gross, 3 sizes, $1\frac{1}{2}$ in., No. 10, 2 in., No. 11, and $2\frac{1}{2}$ in., No. 11 ..... | 2 30   22 50 |
|--|--------------|

#### 50 CENT to 35 CENT COUNTER.

- |  |              |
|--|--------------|
| 50   SCREWS, Bessemer steel, per gross, 2 sizes, 2 in., No. 15, and $2\frac{1}{2}$ in., No. 12 | 3 25   31 00 |
|--|--------------|

#### 75 CENT to 50 CENT COUNTER.

- |   |              |
|---|--------------|
| SCREWS, Bessemer steel, per gross, 2 sizes, $2\frac{1}{4}$ in., No. 14, and 3 in., No. 15 | 4 50   42 00 |
|---|--------------|

#### \$1.25 to \$1.00 Counter.

- |   |              |
|---|--------------|
| STEEL SQUARE, $\frac{1}{2}$ and $\frac{1}{4}$ in. divisions, a first-quality square ..... | 9 00   85 00 |
| Same nickel-plated, one-half more.  |              |

A. I. ROOT, Medina, Ohio.